

DISTRICT OF COLUMBIA

THE OPERATIONS OF THE  
ENGINEER DEPARTMENT  
DISTRICT OF COLUMBIA

YEAR ENDED JUNE 30, 1926

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REPORT  
OF THE OPERATIONS OF THE  
**ENGINEER DEPARTMENT**  
OF THE DISTRICT OF COLUMBIA

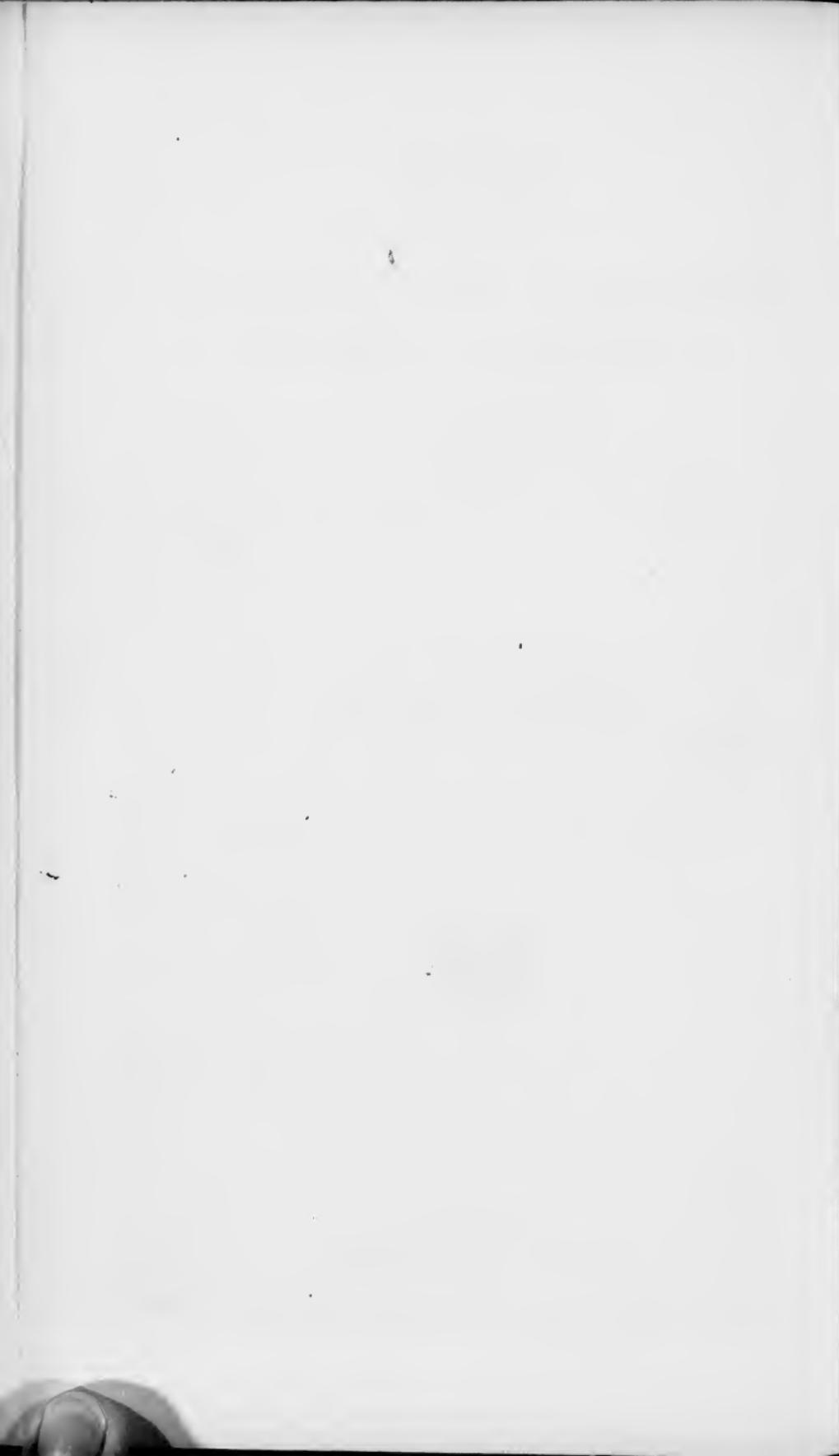
FOR THE YEAR ENDED  
JUNE 30  
**1926**

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UNDER THE DIRECTION OF  
**LIEUT. COL. J. F. BELL**  
Corps of Engineers, United States Army  
Engineer Commissioner, District of Columbia



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1926



## TABLE OF CONTENTS

	Page
Ashes, collection of-----	14
Asphalts and cements, report of inspector-----	46
Buildings, report of inspector-----	55
City refuse division, report of-----	13
Constructing engineer, workhouse and reformatory, report of-----	73
District Building, report of superintendent-----	36
Electrical engineer, report of-----	74
Engineer commissioner, report of-----	1
Extract from Report of the Commissioners of the District of Columbia for the fiscal year ended June 30, 1926-----	1
Highways, report of engineer-----	39
Insanitary buildings, report of board for condemnation of-----	34
Municipal architect, report of-----	63
Municipal garage, report of-----	38
Parking, report of superintendent of trees and-----	47
Permit clerk, report of-----	61
Plumbing inspector, report of-----	61
Refuse, miscellaneous, collection of-----	13
Sanitary engineer, report of-----	24
Steam engineers, report of board of examiners of-----	33
Surveyor, report of-----	50
Trees and parkings, report of superintendent-----	47
Water department, report of superintendent-----	16
Wharf committee, report of-----	31

## ORGANIZATION OF THE ENGINEER DEPARTMENT, DISTRICT OF COLUMBIA

Lieut. Col. J. F. BELL, *Corps of Engineers, United States Army, Engineer Commissioner.*  
Maj. R. A. WHEELER, *Corps of Engineers, United States Army, Assistant.*  
Maj. W. H. HOLCOMBE, *Corps of Engineers, United States Army, Assistant.*

### UNDER THE IMMEDIATE SUPERVISION OF THE ENGINEER COMMISSIONER

#### ZONING COMMISSION:

Maj. R. A. WHEELER, *Executive Officer.*

#### COLLECTION AND DISPOSAL OF CITY REFUSE; STREET AND ALLEY CLEANING:

MORRIS HACKER, *Supervisor.*

#### SEWER CONSTRUCTION AND MAINTENANCE:

J. B. GORDON, *Sanitary Engineer.*

#### WATER DISTRIBUTION AND REVENUES:

J. S. GARLAND, *Superintendent.*

E. H. GROVE, *Water Registrar.*

#### RECORD DIVISION:

ROLAND M. BRENNAN, *Chief Clerk.*

#### WHARF COMMITTEE:

ROLAND M. BRENNAN, *Chairman.*

D. E. McCOMB, *Engineer of Bridges.*

H. R. LOHMAN, *Harbor Master.*

#### CONTRACT BOARD:

ROLAND M. BRENNAN, *Chairman.*

#### DISTRICT BUILDING:

Maj. W. H. HOLCOMBE, *Superintendent.*

### UNDER THE IMMEDIATE SUPERVISION OF MAJOR WHEELER

#### HIGHWAYS (STREETS, ROADS, BRIDGES, ETC.):

C. B. HUNT, *Engineer of Highways.*

J. W. DARE, *Assistant Engineer of Highways.*

Sidewalks and alleys—

II. N. MOSS, *Superintendent of Streets.*

Construction and maintenance of suburban roads—

L. R. GRABILL, *Superintendent of Suburban Roads.*

Construction and care of bridges—

D. E. McCOMB, *Engineer of Bridges.*

Engineer department stables—

BART J. LYNCH, *Superintendent.*

Asphalts and cements—

V. CLEAVER, *Inspector of Asphalt and Cement.*

#### TREES AND PARKINGS:

CLIFFORD LANHAM, *Superintendent of Trees and Parkings.*

#### SURVEYOR'S OFFICE (Including street extensions):

M. C. HAZEN, *Surveyor.*

#### BUILDING INSPECTION:

J. W. OEHMANN, *Inspector of Buildings.*

Plumbing inspection—

A. R. McGONEGAL, *Inspector of Plumbing*

Plumbing board—

LOUIS CONRADIS.

JAMES S. O'HAGAN.

SAMUEL TAPP.

Board of examiners, steam engineers—

E. F. VERMILLION.

H. BOESCH.

T. S. TINCHER.

Permits, engineer department—

H. M. WOODWARD, *Permit Clerk.*

#### BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS:

Maj. R. A. WHEELER, *Assistant to the Engineer Commissioner.*

Dr. W. C. FOWLER, *Health Officer.*

J. W. OEHMANN, *Inspector of Buildings.*

### UNDER THE IMMEDIATE SUPERVISION OF MAJOR HOLCOMBE

#### ELECTRICAL DEPARTMENT:

WARREN B. HADLEY, *Electrical Engineer.*

#### CONSTRUCTION AND MAINTENANCE OF MUNICIPAL BUILDINGS:

ALBERT L. HARRIS, *Municipal Architect.*

HENRY STOREY, *Superintendent of Repairs.*

#### MUNICIPAL GARAGE:

E. P. BROOKE, *In Charge.*

CHARLES N. EMMONS, *Superintendent.*

#### PURCHASE OF LAND.

#### MOTOR TRANSPORT.

#### AUTOMOBILE BOARD.

#### PROPERTY MAINTENANCE AND UTILIZATION.

**EXTRACT FROM REPORT OF THE COMMISSIONERS OF  
THE DISTRICT OF COLUMBIA FOR THE FISCAL YEAR  
ENDED JUNE 30, 1926**

**OFFICE OF THE COMMISSIONERS  
OF THE DISTRICT OF COLUMBIA,  
Washington, December 6, 1926.**

*To the Senate and House of Representatives of the United States of America in Congress assembled:*

The Commissioners of the District of Columbia herewith submit for the information of Congress, pursuant to the requirements of section 12 of an act providing a permanent form of government for the District of Columbia, approved June 11, 1878 (20 U. S. Stats. 108), a report of the official doings of that government for the fiscal year ended June 30, 1926.

\* \* \* \* \*

**ROADWAY PAVEMENTS**

The accompanying table shows the area in square yards of new roadway pavements laid and old roadway pavements resurfaced during the year, with the total in square yards and miles of the various kinds of pavements at the close of the fiscal year.

*Comparative statement showing character and extent of roadway pavements*

	Existing amount on June 30, 1925		New pavement gments laid dur- ing year (square yards)	Pav- ements replaced during year (square yards)	Existing amount on June 30, 1926	
	Square yards	Miles			Square yards	Miles
Sheet asphalt and coal tar.....	3,510,358	186.88	33,205	1 13,711	3,529,852	188.08
Asphalt blocks.....	606,156	30.78	-----	2 4,124	602,032	30.56
Asphaltic surface (Bessonite).....	142,098	10.47	61,892	-----	203,990	13.17
Durax blocks.....	17,968	.57	13,711	-----	31,679	1.13
Asphaltite or bituminous concrete:						
On concrete base.....	78,708	4.58	-----	-----	78,708	4.58
On stone base.....	38,909	2.16	-----	-----	38,909	2.16
Cement concrete.....	568,374	29.68	259,318	3 37,060	790,632	42.09
Granite block and rubble.....	280,834	15.64	3,102	{ 2 12,988	260,598	14.77
Vitrified block.....	17,390	1.04	-----	{ 16,350 } 8,482	17,390	1.04
Cobble.....	36,374	1.52	-----	-----	36,374	1.52
Macadam (estimated).....	1,614,306	104.74	4 77,600	{ 5 68,182 }	1,615,242	108.35
Gravel and unimproved (traveled).....	-----	165.80	-----	-----	-----	162.80
Gutters on asphalt streets.....	248,352	-----	3,024	-----	251,376	-----
Pavements maintained by street rail- ways.....	616,807	-----	-----	-----	616,807	-----
Gutters on asphaltic concrete streets.....	9,847	-----	-----	-----	9,847	-----
Total.....	7,792,481	553.86	451,852	160,897	8,083,436	570.25

<sup>1</sup> Replaced with Durax block.

<sup>2</sup> Replaced with standard asphalt pavement.

<sup>3</sup> Replaced with asphaltic surface.

<sup>4</sup> Replaced with cement concrete.

<sup>5</sup> Placed by superintendant of roads from other streets.

The sums appropriated for expenditures under this head during the year were as follows:

For repairing old roadway pavements, including asphalt resurfacing—	\$950,000
For paving new roadways—	535,450
For repairs to suburban roads—	297,500
For grading streets, alleys, and roads—	52,700
For paving and repaving roadways under the gasoline tax road and street fund—	1,274,000

The prices paid under contracts for roadway pavements during the year were as follows:

Laying sheet asphalt pavement (2½-inch asphalt surface, 2-inch binder (before compression) with 6-inch concrete base)—	Square yard \$2.57, \$2.37, \$2.75
Laying vitrified block gutter with 6-inch concrete base—	2.75, 2.00, 2.85
Laying 6-inch concrete roadway—	1.82, 1.87
Laying small granite block (Durax) roadway pavement on 7-inch concrete base—	4.60

The outstanding feature of the year's construction program of this division was the work made possible by the tax on motor-vehicle fuels amounting to over a million and a quarter dollars and including a number of items of roadway widenings of heavily congested traffic thoroughfares. This and other increments added over \$800,000 to the total annual expenditures in excess of the preceding year's total. Although the rate of execution of the work authorized to be paid for from the gas tax was necessarily limited by the rate of collection of the tax, all work authorized was under contract and nearing completion at the end of the fiscal year.

Somewhat more liberal appropriations permitted a more adequate program of resurfacing of asphalt pavements and the funds provided for the coming year by Congress reflect a recognition of the need of replacing at an early date the large area of these pavements whose condition, due to extreme age, plainly calls for such action in the interest of public safety and comfort.

The repairing of cuts made in pavements for underground installations reached a total cost of \$505,000 during the year, an increase of \$70,000 over the preceding year and of \$135,000 over that next preceding. This is manifestly a reflection of expansion of various services and of building activity.

#### SUBURBAN ROADS

The funds for repairs to suburban roads and suburban streets was \$297,500, and the appropriation for grading streets, alleys, and roads was \$50,000. The upkeep of suburban roads is constantly increasing in cost per unit of area due to a like increase in the number and average axle load of vehicles. The total area of suburban roads maintained was increased during the year by additions of newly opened streets whose area was 40 per cent of the area of pavements laid within the suburban area. The funds for repairs are thus charged with an augmented unit cost and an increased area to be maintained.

#### MUNICIPAL ASPHALT PLANT

During the year the municipal asphalt plant was operated for a period of 254 days, with a total output of 211,350 cubic feet of

asphaltic material, or an average daily output of 832 cubic feet. The details of the cost of the operation of the plant are contained in the report of the engineer of highways.

#### SIDEWALKS AND ALLEYS

The fund for paving alleys and sidewalks abutting private property amounted to \$298,000, and for sidewalks abutting Government property \$15,000. Cement concrete was used exclusively. The contract prices for sidewalks were \$2.18 and \$2.16 for those adjacent to paved roadways and \$2.26 and \$2.28 for those adjacent to unpaved roadways.

#### BRIDGES

The expenditures for construction and repair of bridges amounted to \$30,972.07 and the appropriation for the maintenance of the Anacostia and Highway Bridges were expended in full.

The Pennsylvania Avenue Bridge across the Eastern Branch was painted.

A contract was executed and work was started thereunder for the construction of a subway under the tracks of the Baltimore & Ohio Railroad on the line of Van Buren Street.

#### ENGINEER STABLES

This activity rendered service on a reduced scale due to elimination of a part of the stock whose service was replaced by motor trucks.

#### INSPECTION OF ASPHALTS AND CEMENTS

Through this office tests, chemical and physical, are made of materials used in street and road improvements, likewise of all cement used in construction and repair of District buildings and in sewer construction; fuel oils used in the municipal asphalt plant and water department power plant and miscellaneous tests of like character. Tests made during the year were: Asphalt materials, 1,789; oils, 27; tars, 11; sand, 189; gravel, 110; stone, 84; limestone dust, 63; cements, 19,501, representing 199,817 barrels; and miscellaneous materials, 20; a total of 22,257.

Samples of asphalt tested represented 4,035 tons; 3,275 tons used by four different contracting firms laying asphalt pavements and 760 tons used by the municipal asphalt plant.

Of the material tested there were rejected 3,290 cubic yards of asphalt sand and 1,264 of Portland cement.

#### SURVEYOR'S OFFICE

The total of fees paid for work done by this office for private parties amounted to \$44,179.30. Considering the work performed for the Federal and District Governments, and the work done in connection with condemnation cases for the opening of streets, alleys, etc., this makes the office more than self-sustaining.

#### HIGHWAY PLAN

Many surveys were made during the year and monuments placed to mark street corners in accordance with the plan of the permanent system of highways. Changes were also made in the highway plan under a special appropriation of \$1,500. Much activity has been noted in this work due to the creation of the National Capital Park and Planning Commission.

#### CONDEMNATION CASES

This office is charged with the performance of much preliminary work in connection with condemnation cases such as expert engineering field work, accurate computations and the preparation of descriptions and final plats to be filed in court. During the past year 68 cases were pending in the courts. Condemnation for the acquisition of streets in Barry farm was concluded and recorded. This was the largest condemnation case ever undertaken by the District.

#### PARKS

During the past year condemnation proceedings were instituted for the acquisition of small park areas under an appropriation of \$5,000, made available for this purpose. This appropriation should be increased. Property values in the District are on the rise and more money should be appropriated in order that a greater number of small park areas at street intersections, so desirable in the development of the city, may be acquired.

#### STREET EXTENSIONS

Fifty street-extension cases were recorded during the year. This includes condemnation cases and dedications for the extension and widening of streets.

During the past year a bill was enacted which amends the act relative to the opening and extension of streets in accordance with the highway plan. Hereafter, when it is found that the benefits will not equal the damages, the excess of damages over benefits may be paid out of District revenues. This law will enable the commissioners to extend many important streets as laid down on the highway plan, which would otherwise fail under the old law. The new law is believed to be important and beneficial legislation as the benefits derived from the opening and widening of streets accrue to the general community and are not restricted to the immediate area involved.

#### CLOSING OLD ROADS

The act of January 30, 1925, authorizing the closing of streets, roads, and highways rendered useless and unnecessary by reason of the opening of streets in accordance with the highway plan has been used advantageously in the development of tracts of land unnecessarily cut up or divided by old highways. It has, in many instances, permitted an orderly and comprehensive subdivision and development of property on a more economical basis in accordance

with the highway plan. Seven cases have been recorded where streets have been closed under the authority of this law.

#### TREES AND PARKING

The number of trees planted along the curbs on the streets in the District of Columbia at the close of the fiscal year was 104,696, a net decrease of 173 trees. During the fiscal year 1,754 young trees were planted in their permanent positions.

At present our nurseries have not been able to produce a sufficient number of trees of the proper size to keep pace with the growth of the city and its street improvements. Last fall it was necessary to purchase 300 red oak trees from a private nursery for street planting.

For various reasons 2,197 trees were removed during the year from public space.

The cost of removing 1,705 trees was paid from the appropriation for the trees and parking division at a total cost of \$9,010.03. The cost of other trees removed was paid from the appropriations of other departments and whole cost deposits.

Twenty-one thousand nine hundred and twenty-five trees were sprayed during the year for the extermination of leaf-eating insects.

Five hundred and thirteen red oak trees were transplanted at the Fort Dupont nursery, and 400 white oak, 240 willow oak, 392 gingko, 982 Norway maple, 129 silver maple, 369 sycamore, and 455 gum trees at the Poplar Point nursery.

During the year 9,722 trees were trimmed, at a total cost of \$9,123.25.

A sum of \$204.64 was expended in tree surgery necessitated by cavities in 6 elm, 2 sycamore, 2 Norway maple, 4 sugar maple, and 2 linden trees at the curb line.

The removal of weeds from uninclosed public parkings along the streets was undertaken at a cost of \$2,208.46, while \$135.98 was expended for the care of small reservations throughout the city.

The cultivation of 10,885 young trees involved the expenditure of \$1,990.24.

The height of 533 retaining walls was passed on, and 1,465 permits were issued affecting the grade of the parking in connection with building operations.

#### COLLECTION AND DISPOSAL OF CITY REFUSE

For dust prevention and cleaning of streets and alleys there was appropriated \$430,000, but because of the necessity of extraordinary work in the removal of snow during the past winter an additional sum of \$25,000 was appropriated.

The amount of garbage collected was slightly less than during the year previous, about 69,000 tons, as compared with about 73,000 tons in the year 1925.

The garbage reduction plant produced 3,538,125 pounds of grease, which sold for \$252,055.43. As the expense of operating this plant, including the cost of freight from Washington to Cherry Hill, Va., was \$185,281.16, there was a substantial profit amounting to \$66,774.27 to the Government from this source.

The trash plant, while not a source of profit at the prices prevailing for salvaged material during the past year, was successfully operated as a disposal plant. One hundred eighty-three thousand four hundred two cubic yards were run through this plant, and 43 per cent of this material salvaged, bringing a revenue to the District of \$79,429.88.

Total receipts this year by this division from all sources were as follows:

Garbage grease	\$252,055.43
Salvaged trash	79,429.88
Hides	2,137.00
Manure	2,110.79
	335,733.10

Because of the early commencement of cold weather last winter the ashes collected from private householders increased some 13,000 cubic yards, or slightly more than 8 per cent, over the previous year. The cost of this collection and disposal was \$137,893.99.

In connection with these several services it is interesting to note that upon survey it is found that garbage is collected from 83,515 different places, and ashes and trash from 78,407 private householders.

The number of dead animals collected by this division was 43,624, about the same as in the previous year.

#### BUILDING OPERATIONS

The estimated value of building operations during the year was \$63,599,260, an increase over 1925 of \$736,300, a really extraordinary showing in view of the fact that the postwar feverish activity in building construction has long since subsided. The only logical inference is, therefore, that Washington has risen, in this respect, to the commanding position occupied by only the first five or six cities, in point of population in the country.

The number of permits was 11,574 as against 11,993 last year, an insignificant decrease of 419. Business buildings numbered 758, whereas there were 1,070 in 1925. The number of apartments, however, was 173 as against 120, while the number of dwellings increased from 4,129 to 4,135. The total number of new buildings was 5,066 in 1926 and 5,319 in 1925, a difference of 253.

There were 2,602 certificates of occupancy issued, a recession from 1925 of 407. Of these certificates of permits, 2,355 were for conforming uses and 247 for nonconforming uses.

The amount collected in fees from the operation of the building inspection division was \$85,520. After deducting from this sum all of the expenses of the division, salaries, contingent or operating costs, etc., there remains a balance of \$2,932.25, demonstrating that the department was more than self-supporting.

#### PLUMBING AND PLUMBING INSPECTION

The plumbing inspection division made 58,271 inspections during the year. About half of these were inspections of plumbing work in new buildings and about one-half were inspections on account of complaints of insanitary plumbing, leaky roofs, and defective rain-

leaders, which originated in other divisions of the District government.

During the year 12 warrants were obtained against unlicensed plumbers and others for violation of the plumbing regulations. These prosecutions netted a total in police court fines of \$70. No case taken to court by the plumbing division was decided adversely.

The plumbing board held 24 meetings and examined 63 applicants, of whom 15 passed and were granted master plumber licenses. At the close of the year there were 262 registered plumbers and 6 registered gas fitters.

#### PUBLIC CONVENIENCE STATIONS

There were in operation throughout the year four convenience stations, opened daily from 6 a. m. to midnight, and during the year the attendants reported a total patronage for all stations of over sixteen and one-half million. The cash receipts from use of pay compartments, etc. totaled \$6,690.58, this being about one-quarter of the actual cost of the operation of the stations.

#### INSPECTION OF STEAM BOILERS

Four hundred and eighty-four steam boilers were inspected by the inspector of steam boilers, including 35 boilers belonging to the District of Columbia. Five boilers were condemned as unfit for further use. The compensation of the inspector of steam boilers is paid from fees collected from the owners. The total amount of the fees reported by that official was \$2,245 and the expenses of inspection \$380, leaving a net compensation of \$1,865 for the inspector.

#### EXAMINATION OF STEAM ENGINEERS

The board of examiners of steam engineers held 52 meetings and examined 416 applicants, of whom 185 were found competent and 231 incompetent.

#### CONSTRUCTION OF MUNICIPAL BUILDINGS

During the year 17 buildings were under construction, as follows: Armstrong Technical High School, connecting the new addition to the old building and necessary reconstruction of the old building, which was completed November 17, 1925; Western High School, remodeling, which was completed January 25, 1926; garage for police station No. 12, which was completed February 16, 1926; storehouse for the electrical department, District of Columbia, which was completed February 10, 1926; Macfarland Junior High School, auditorium addition, which was completed April 10, 1926; James F. Oyster School, 8-room extensible building, which was completed June 18, 1926; police precinct station No. 13, which was completed August 14, 1926; Francis Junior High School, which will be completed January 1, 1927; Randall Junior High School, 8-room addition to the Cardozo School, including gymnasium and assembly hall, which will be completed January 1, 1927; Stuart Junior High School, which will be completed February 1, 1927; Macfarland Junior High School, wing addition, which will be completed February 1, 1927;

Brightwood School, 16-room building, including gymnasium and assembly hall, which was completed August 17, 1926; Bell School, 8-room addition, which was completed August 3, 1926; John Greenleaf Whittier School, 8-room extensible building, which will be completed October 1, 1926; Job Barnard School, 8-room building, which will be completed October 1, 1926; George Truesdell School, 8-room addition, which will be completed October 1, 1926; Industrial Home School for Colored Children, cottage for boys, which was completed August 25, 1926.

Besides the preparation of plans and specifications for the above mentioned buildings, plans, and specifications for 50 other pieces of work, such as heating systems for engine houses, police stations, and school buildings, and equipment for various buildings, were prepared in this office, amounting to \$176,208. The contracts entered into by this office for the fiscal year amounted to a total of \$4,737,876.37.

#### REPAIRS TO MUNICIPAL BUILDINGS

All municipal buildings are kept in repair under the direction of the municipal architect.

The appropriations for repair work and the expenditures of same were as follows:

For the repairs to school buildings, \$450,000 was appropriated, and all was expended.

For the repairs to engine houses, \$25,000 was appropriated, all of which was expended except \$13.25.

For repairs to police stations, \$7,000 was appropriated, all of which was expended.

For repairs to police court, 1925-26, \$3,000 was appropriated, all of which was expended; 1926, \$8,000 was appropriated, all of which was expended except \$66.25.

In addition to the above, repairs were made on various buildings under the supervision of the superintendent of repairs to the amount of \$67,857.13 out of the appropriations controlled by other departments.

Steam boilers in over 100 District buildings were inspected and repaired.

Modern lighting systems were installed in schools extensively.

#### WORKHOUSE AND REFORMATORY

Good progress was made during the year in the construction work at the District Workhouse and Reformatory. The principal work done at the workhouse consisted of work on 3 dormitories, 1 of which was completed and occupied, the construction of 2 brick cottages, and the starting of the new brick plant. At the reformatory at the end of the fiscal year there were completed 4 shop buildings, 1 boiler house, 1 cell house, 1 disciplinary dormitory, 1 dormitory; other work near completion are 1 shop building (except floor, etc.), 3 dormitories (except for interior finishing), 2 dormitories (brick-work average 90 per cent complete), 2 dormitories foundations in place, 1 wash house (except interior work), 1 mess hall (brick-work practically complete, main roof complete except slating), 1 guard's cottage average 90 per cent complete.

**HARBOR FRONT**

The actual frontage of the District of Columbia devoted to commerce, with the exception of canals, is about 2 miles. The total available water front is 18 miles, of which about 8 miles is set aside for parks and other purposes of the United States. The greater part of the wharf property under the control of the commissioners is situated along the Washington Channel.

The harbor police station and dock, the dock of the fire boat, the District morgue, the municipal fish wharves and market, and the District workhouse and sand wharves are located on the Washington Channel between N and Thirteenth Streets. The balance of the frontage is leased by steamboat companies, boathouses, lumber dealers, etc.

The total revenue from wharf rentals, including the fish market, amounted to \$36,718.71.

Attention is called to the availability of the water front on the Washington Channel between the fish market and Fourteenth Street as a site for a new farmers' produce market. The establishment of a farmers' produce market on the water front should tend to encourage a resumption of water traffic in vegetables and fruits and other commodities from the rich tidewater counties of Maryland and Virginia. It would appear that a farmers' produce market adjoining the fish market would be a logical extension of market facilities.

Several failures of water-front structures have occurred during the year, due solely to the fact that these structures are very old. Other failures may be expected from time to time and it is hoped that the permanent development of the water front may be initiated at a very early date.

**MUNICIPAL GARAGE**

Forty-four automobiles were maintained and kept in running condition during the fiscal year ended June 30, 1926. The garage was kept open day and night for urgent and necessary transportation. All machines were washed and supplied with gasoline and oil by the night force, who also acted as watchmen. A mechanical and laboring force made all necessary repairs and operated automobiles for departments having no vehicles or drivers. An automobile repair and paint shop is operated at Second and Bryant Streets.

The operating cost for the maintenance of these automobiles, including gasoline, oil, tires, labor, and miscellaneous supplies amounted to \$19,604.77, or an average of \$445.56 for each car—\$0.0525 per mile. The cost of repair parts amounted to \$2,979.40, or an average of \$67.71 for each car—\$0.0122 per mile.

The total mileage amounted to 283,184 miles, or an average of 6,436 miles per car. This is an average increase of 1,083 miles per car and a decrease in the cost per mile per car of \$0.0173.

**STREET LIGHTING**

There are 23,387 public lamps of all kinds in the avenues, streets, alleys, etc., under the jurisdiction of the Commissioners of the Dis-

trict of Columbia. Of these, 12,065 are gas and 11,322 electric; of the gas lamps, 10,811 are single-burner mantle, 909 are double-burner mantle, and 345 are small flat flame, for designation purposes; of the electric, 892 are magnetite arc, 10,154 are incandescent, ranging from 60 to 1,000 candlepower each (85 per cent of 60 and 100), and 276 are incandescent, of about 10 candlepower, for "designation."

There was a net increase during the year of 820 lamps.

The increase in aggregate candlepower of the street-lighting system under the jurisdiction of the commissioners is from approximately 2,183,400 to approximately 2,844,600, about 30 per cent.

Of 6.6-ampere arc lamps, 147 were added, and of 4-ampere arcs, 77 were discontinued. Arc lamps on M Street NW., west of Rock Creek, were changed from 4-ampere to 6.6-ampere, in connection with street widening and repaving, preliminary to installation of new design lamp posts. Arc lamps of 6.6-ampere on District owned ornamental posts and with new design inclosing glass ware, which has been given the trade name "Washington type," replaced a lesser number of 4-ampere arcs on company owned nonornamental poles on H Street, from Third Street NW. to Fifteenth Street NE. (not including the railroad viaduct), effecting an excellent lighting on up-to-date lines of that commercially zoned, busy thoroughfare.

An initial installation of 1,000-candlepower incandescent lamps, 231 in number, and an increase in the 600-candlepower lamps, from 76 to 514, all on the new types of ornamental posts and equipment, was made in Sixteenth Street NW., throughout its present length, and in Massachusetts Avenue NW., from Wisconsin Avenue to Seventh Street, including Scott, Thomas, and Dupont Circles and Mount Vernon Square, the initial installation of synchronized traffic signals being on these two traffic arteries, mounted on the street lamp posts. Specially planned location of lamp posts at controlled intersections served to avoid additional posts and posts of diverse kind for the traffic signals. The posts at the circles and at the south side of the square each bear two lamps at 20 feet mounting height; the general run of lamps are at 15 feet, and lamps at 18 feet blend between the others. This installation, together with that on H Street, constitutes a rather comprehensive sample of the better grades of the improved project lighting on high grade important traffic arteries. A sample of another grade on a residential street of moderate traffic importance is the installation of 250 candlepower lamps on new type 15-foot posts on California Street NW. from Connecticut Avenue to Massachusetts Avenue.

Of another sort, adapted to the situation, of the improved project as to adequacy of lighting but not on ornamental posts, is the installation of 250-candlepower lamps, on new design pendant unit with inclosing glass, mounted in novel manner on center trolley poles, two to a pole and on alternate poles except as proximity to street intersection, etc., indicates adjacent pole treatment; this on Wisconsin Avenue NW., from Massachusetts Avenue to River Road. Some further installations of these general types are in progress. The number of 100-candlepower lamps was reduced by 549. The number of 60-candlepower lamps was increased by but 228. Of the gas lamps, the number of single burner was reduced by 81 and the number of double burner increased by 323.

The situation with respect to the several suits at law against certain railway companies for recovery of sums expended in maintaining lights adjacent to their respective rights of way remains essentially as stated in 1920 and succeeding reports, with accretion of sums claimed.

#### SIGNAL SYSTEMS—FIRE ALARM, TELEGRAPH, POLICE PATROL SIGNAL, AND TELEPHONE SERVICE

There were 877 fire-alarm boxes in service at the end of the year, 748 on underground and 129 on overhead wires, a net increase of 38 over the preceding year; 3,944 box and local fire alarms (exclusive of "additional" alarms) were received and transmitted during the year, of which 297 were false alarms.

There were 509 police patrol boxes in service at the end of the year, 411 on underground and 98 on overhead wires, an increase of 8 compared with the preceding year; 3 boxes were changed from overhead to underground connection.

There were 1,728 telephones connected to the District system at the end of the year, and 29 in use as portable sets by fire and electrical departments, an increase of 64 in the year.

There were 2,692 cells of storage battery in service on fire alarms, police patrol, and local circuits at the end of the year.

There were in service in the composite signals system (fire alarm, police patrol, and telephone) on June 30, 1926, a grand total of 7,945 miles of conductor, of which 7,798 miles were underground and 147 miles overhead. Reserve capacity of cable is below requirement of demand and below safe emergency provision. Provision for expansion is again presented as an urgent requirement.

The number of permits issued for installation of electrical wires and apparatus was 15,267; fees paid to collector of taxes, \$23,912; number of inspections recorded, 28,212.

#### SEWERAGE AND SEWAGE DISPOSAL SYSTEM

The construction and maintenance of the sewerage system and the sewage disposal system of the District of Columbia is placed under a division in charge of the sanitary engineer.

The length of main and pipe sewers constructed during the year was 30.79 miles. The total length of main and pipe sewers on June 30, 1926 was 842.58, of which 160.24 miles are main sewers and 682.57 miles are pipe sewers. In addition to the above new sewer work, 242 stormwater catch basins were constructed, bringing the total to 6,489.

There was expended during the year on new extensions of the sewerage system the sum of \$889,807.18 and on the sewage disposal system \$98,319.71. The total cost of the sewerage system to June 30, 1926, was \$18,092,893.47 and of the sewage disposal system to the same date was \$6,151,851.67, making a total of \$24,244,745.14.

The main sewerage pumping station and the three substations were in continuous operation throughout the year, handling the sewage of practically the entire District. In addition the main station handled the stormwater from the 900-acre level area flanking Pennsylvania Avenue from Peace Monument to Fifteenth Street.

At the main station the combined pumpage of sewage and storm water amounted to 30,874,530,000 gallons during the year. The Poplar Point substation pumped 633,872,267 gallons, the Rock Creek substation 470,262,000 gallons, and Woodridge substation 15,401,411 gallons. Eliminating Rock Creek and Woodridge substation, which deliver their discharge to the main station, the above indicates a mean daily pumpage of 86,324,389 gallons. The coal consumption at the main station for the year was 4,641 tons, of which about 13 per cent should be charged off to cover bunker losses and miscellaneous uses.

The Bureau of Mines, by request of the commissioners, made an exhaustive study of the steam generating equipment of the main station during the year and plans are being made to improve it along the lines of the bureau's recommendations.

The pollution of the Potamac River by discharge of raw sewage was worse during this year than it has ever been. A very substantial increase in the sewage pumped combined with extended periods of very low flow in the river during late summer and fall months caused the dilution figure to fall dangerously low. Action should be taken in the very near future toward providing for some preliminary treatment of sewage before it is emptied into the river.

During the year new sewers were constructed to provide service for 1,608 houses, an average of 88 feet per house served. This is some 20 feet more than the previous year due to the longer stretches necessary to cover the more suburban developments.

#### WATER MAINS

During the year 123,490 linear feet, or 23.39 miles of water main of various sizes were laid last year at aggregate cost of \$516,839.38, making a total length of main now in service of 755.6 miles.

#### WATER CONSUMPTION

The mean daily water consumption was 69,317,738 gallons, giving an approximate mean daily per capita consumption of 138 gallons.

Total pumpage for the year was 14,302,698,765 gallons.

Total coal burned was 9,782 tons.

The cost of operating pumps for the year was \$122,204.97, as against \$119,149.87 in 1925, thus making the total operative cost of pumping 1,000,000 gallons of water into the mains \$8.50 which is \$0.55 per million gallons less than last year.

The financial statement of the water department revenues and expenditures will be found in the report of the auditor of the District of Columbia.

#### WATER METERS

During the year 2,548 new meters were installed, and 75,890, or 86.1 per cent of the total water services are now metered.

Very respectfully,

CUNO H. RUDOLPH,  
J. F. BELL,

PROCTOR L. DOUGHERTY,

*Commissioners of the District of Columbia.*

## **REPORT OF THE OPERATIONS OF THE ENGINEER DEPARTMENT OF THE DISTRICT OF COLUMBIA**

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### **REPORT OF THE CITY REFUSE DIVISION**

WASHINGTON, D. C., *August 10, 1926.*

SIR: I have the honor to submit the following report of the operations of the city refuse division, engineer department, for the year ended June 20, 1926:

For dust prevention and cleaning of streets and alleys there was appropriated \$430,000, but because of the necessity of extraordinary work in the removal of snow during the past winter an additional sum of \$25,000 was appropriated. The handling of this snow was made easier because of the previous purchase of additional plows, trucks, and graders, so that besides clearing the snow from the roadways adjoining street car tracks a large number of the important thoroughfares not carrying car tracks were opened and kept passable.

The division is now equipped with 10 large motor-drawn flushers. They provide the best means of keeping the streets clean during the greater part of the year, and in winter, when it is too cold to operate them as flushers, they are invaluable, with plow attached, to push the snow to the side.

The tables appended hereto show the largely increased area flushed during the year, as well as the cost and yardage cleaned by the other cleaning methods used.

The amount of garbage collected was slightly less than during the year previous, about 69,000 tons, as compared with about 73,000 tons in the year 1925. The service to the householders was the same, with extensions given to properties that had not had any service previous to this year.

Three million five hundred thirty-eight thousand one hundred and twenty-five pounds of grease were produced at the garbage reduction plant, which sold for \$252,055.43. As the expense of operating this plant, including the cost of freight from Washington to Cherry Hill, Va., was \$185,281.16, there was a substantial profit amounting to \$66,774.27 to the Government from this source.

The trash plant, while not a source of profit at the prices prevailing for salvaged material during the past year, was successfully operated as a disposal plant. One hundred and eighty-three thousand four hundred and two cubic yards were run through this plant, and 43 per cent of this material salvaged, bringing a revenue to the District of \$79,429.88.

The amount of trash collected was nearly 9 per cent greater than in the previous year. As indicated a year ago, this plant is over-

loaded, and in connection with an ash and street cleaning transfer station recommended, consideration should be given to the erection, also, of a large incinerator for the disposal of trash that can not be handled at the present plant.

Total receipts this year by this division from all sources were as follows:

Garbage grease -----	\$252,055.43
Salvaged trash -----	79,429.88
Hides -----	2,137.00
Manure -----	2,110.79
	335,733.10

Because of the early commencement of cold weather last winter the ashes collected from private householders increased some 13,000 cubic yards, or slightly more than 8 per cent, over the previous year. The cost of this collection and disposal was \$137,893.99. As in previous years, a large proportion of these ashes was used by the surface division for the making of temporary roadways in the suburbs.

In connection with these several services it is interesting to note that upon survey it is found that garbage is collected from 83,515 different places and ashes and trash from 78,407 private householders.

The number of dead animals collected by this division was 43,624, about the same as in the previous year.

The unit costs of the various work done by this division were reduced, and in the results accomplished I desire to make my acknowledgments to the employees of this division for their loyal and able efforts.

MORRIS HACKER,  
*Supervisor City Refuse.*

The ENGINEER COMMISSIONER.

*Cost of street cleaning, July 1, 1925, to June 30, 1926*

	Area (square yards)	Cost	
		Total	Unit per M
Machine cleaning, horse	63,627,000	\$21,411.41	\$0.337
Machine cleaning, motor	47,678,000	9,899.26	.208
Alley cleaning	94,781,000	56,616.73	.598
Suburban cleaning	50,794,000	25,147.79	.495
Hand patrol	1,603,576,000	198,294.05	.124
Motor flushing	566,451,000	38,237.62	.0675
Sprinkling		4,349.12	
Annual overhead		2,430.92	
Property accounting		3,794.22	
Dump men		4,126.86	
Waste paper boxes		4,762.47	
Sunday cleaning		3,595.73	
Snow and ice		33,558.41	
Total		406,224.59	

Table showing comparative data in connection with street-cleaning work, 1922 to 1926

## SQUARE YARDS CLEANED

	1922	1923	1924	1925	1926
Hand patrol.....	1,357,169,000	1,466,464,000	1,563,035,000	1,504,989,000	1,603,576,000
Machine, horse.....	66,194,000	65,451,000	64,673,000	62,171,000	63,627,000
Machine, motor.....	45,140,000	49,197,000	51,619,000	49,077,000	47,678,000
Alley cleaning.....	57,288,000	63,082,000	85,716,000	92,676,000	94,781,000
Suburban streets.....	50,221,000	39,234,000	38,259,000	41,383,000	50,794,000
Squeegeing.....	94,650,000	59,940,000	46,387,000		
Motor flushing.....	48,223,000	72,628,000	89,246,000	323,825,000	566,451,000

## DIRECT TOTAL COST

Hand patrol.....	\$208,573.06	\$204,983.34	\$205,551.42	\$213,380.68	\$198,294.05
Machine, horse.....	20,337.33	19,534.74	21,312.26	20,767.74	21,411.41
Machine, motor.....	9,974.13	13,065.07	13,538.78	11,247.17	9,899.26
Alley cleaning.....	35,171.92	39,392.12	53,227.77	53,238.58	56,616.73
Suburban streets.....	19,887.76	18,024.78	20,776.27	21,369.26	25,147.79
Squeegeing.....	14,286.34	11,845.35	7,772.83		
Motor flushing.....	6,498.78	8,795.66	9,726.74	24,773.56	38,237.62

## COST PER 1,000 SQUARE YARDS

Hand patrol.....	\$0.154	\$0.140	\$0.131	\$0.142	\$0.124
Machine, horse.....	.307	.298	.330	.334	.337
Machine, motor.....	.221	.266	.262	.229	.208
Alley cleaning.....	.614	.624	.622	.575	.598
Suburban streets.....	.395	.459	.542	.516	.495
Squeegeing.....	.151	.198	.169		
Motor flushing.....	.135	.121	.109	.077	.0675

Table showing comparative data in connection with disposal of all city waste from 1922 to 1926

## NUMBER OF UNITS COLLECTED

	1922	1923	1924	1925	1926
Garbage.....tons.....	69,452	80,014	75,089	72,927	68,907
Ashes.....cubic yards.....	156,100	145,432	151,272	154,982	168,280
Miscellaneous refuse.....do.....	196,763	190,021	186,907	197,890	215,320
Night soil.....barrels.....	14,190	15,217	16,063	17,727	18,653
Dead animals.....number.....	28,675	30,120	34,764	43,609	43,624

## TOTAL NET COST

	1922	1923	1924	1925	1926
Garbage.....	\$210,268.15	\$187,314.43	\$235,235.01	\$200,292.77	\$186,530.56
Ashes.....	135,267.18	117,727.67	131,589.11	133,484.49	137,893.99
Miscellaneous refuse.....	107,439.84	51,087.38	84,139.49	101,539.75	130,733.18
Night soil.....	17,500.00	17,500.00	24,000.00	24,000.00	24,000.00
Dead animals.....	3,360.00	3,360.00	4,911.81	4,668.84	7,126.34

## MISCELLANEOUS DATA ON CONTRACTS

Class of waste	Contractor	Period of contract	Date of expiration	Price per annum	Collected from—
Night soil.....	Warner Stutler....	3 years....	June 30, 1929	\$22,600	All privies in the District.

**REPORT OF THE SUPERINTENDENT WATER DEPARTMENT**

WASHINGTON, D. C., August 27, 1926.

SIR: The annual report of the activities of the water department for the fiscal year ended June 30, 1926, is submitted herewith. Detailed reports of the various subdivision heads can be found on file in this office and because of limited space could not be included in this report.

The total length of cast-iron water mains of various sizes laid during the fiscal year is 123,490 linear feet, or 23.39 miles, an increase over last year's work of 2 miles.

Total length of water mains in the system of all sizes is 736.67 miles.

The mean daily water consumption for the year was 69,317,738 gallons, which showed a mean daily per capita consumption of approximately 138 gallons. The total pumpage for the year was 14,302,698,765 gallons, as compared with 13,170,444,660 gallons last year.

Important work toward extensions consisted of laying trunk water mains aggregating about 4.1 miles in length, details of which will be found under report of engineering and construction.

The cleaning of reservoirs was carried out as usual.

A plan was prepared to extend the first high water service of Anacostia to include areas along Deane Avenue and adjacent streets to the District line, but owing to limited funds we postponed the work until this year, when it is hoped it can be completed from the general extension appropriation.

New pump installations were made at both the Anacostia and Reno Reservoirs.

Total operative cost required in pumping 1,000,000 gallons of water into the water mains amounted to \$8.50, which is \$0.55 per million gallons less than in 1924 and 1925.

Total cost of operating storeroom and yards for the year was 2.915 per cent of the value of material plus value of equipment disposed of.

Throughout the several branches of the office forces, there has been a heavy increase in work performed with no increase in personnel.

J. S. GARLAND,

*Superintendent Water Department.*

To the ENGINEER COMMISSIONER, D. C.

**DISTRIBUTION BRANCH—ENGINEERING AND CONSTRUCTION**

The most important work of the year was the laying of the following trunk water mains which were authorized by act of Congress:

A 30-inch main in Rhode Island Avenue NE. from a point just west of Seventeenth Street to South Dakota Avenue, a total distance of 3,115 feet. This link completes a trunk main sufficient in size to provide an adequate water supply to Brookland and adjacent communities. From South Dakota Avenue to Eastern Avenue (District line) smaller sized mains are proposed to be provided to take care of future needs.

A 16-inch trunk main in Nebraska Avenue NW. from Wisconsin Avenue southward to Forty-fifth Street, thence south in Forty-fifth Street to Lowell Street, a total of 5,370 feet. This completes a loop began last year to reinforce a long line of 6-inch main which has been the only supply to this whole territory for a number of years. The rapid growth of this section will be taken care of now by the laying of this main both for domestic service and proper fire protection.

A 16-inch trunk water main from Forty-eighth Street and Deane Avenue to Sixty-third and Dix Streets NE., a total distance of 5,180 feet. The laying of this main provides a section partly built up but heretofore without water for domestic use or proper fire protection.

A 16-inch trunk water main in I Street NW., from Sixth Street to Eighth Street, south in Eighth Street to H Street, a total distance of 1,200 feet. This main passes through a portion of the business section of the city and will insure a much-needed reinforcement both for domestic service and fire protection. An extension of the main through H Street to Thirteenth Street has been authorized by Congress for 1927.

A decided improvement in the fire and domestic service was accomplished by laying a 16-inch water main in E Street, from Sixth Street to Ninth Street NW., replacing old 6-inch water main greatly overtaxed. This work was done in advance of widening roadway and paving operations.

Completed relocating 20 and 12 inch water mains in Wisconsin Avenue from Massachusetts Avenue to River Road NW. These changes were made necessary on account of paving the roadway and realignment of car tracks to the center of roadway in Wisconsin Avenue.

A 16-inch trunk water main from Allison Street and Illinois Avenue through Allison to New Hampshire Avenue, north in New Hampshire Avenue to North Capitol Street and North Dakota Avenue, a total distance of 6,396 feet.

This main reinforces a large portion of the northwest section of the city heretofore supplied only by a single line of 8-inch main which had become very much overtaxed. It is proposed in the near future to extend this 16-inch main through North Dakota Avenue from North Capitol Street to Sheridan and Fifth Streets.

During the latter half of the fiscal year the department has been employed in relaying and placing a protecting concrete tunnel about the new 36-inch cast-iron pipe line supplying condensing water to the power plant of the United States Capitol. The tunnel is constructed so as to permit easy inspection of the pipe line, well drained, and provided with means of lighting during inspections. Total length of tunnel, about 144 feet; inside measurement, 6 by 6 feet. The concrete is heavily reinforced to insure maximum strength. The new quick setting Aluminite cement was used throughout the work. This work was necessary within the Jersey yards of the Pennsylvania Railroad, under which this pipe line passes. Excessive vibration has caused the jointing material to fail, allowing much leakage, making the ground through which the main passed unsafe for the rail traffic. This work was nearly finished at the close of the year.

## STEAM ENGINEERING

The following is a summary of the work done at the District pumping station for the year:

Water pumped, figured from plunger displacement:

First high service	gallons	7,834,608,765
Second high service	do	4,365,829,000
Third high service	do	2,102,261,000
<b>Total</b>		<b>14,302,698,765</b>
Fourth high service	gallons	180,441,543
Coal burned	tons	9,782
Cylinder oil used	gallons	760
Engine oil used	do	1,103
Crank-case oil used	do	300
Filtered oil used	do	855
Turbine oil used	do	804
Grease used	pounds	674
Waste used	do	928

For the fourth high service the water is pumped from the Reno Reservoir, which is supplied by the third high-service pumps, to an elevated tank by a motor-driven centrifugal unit and gas engines. This machinery is operated daily by three enginemen who work on eight-hour shifts. The water pumped for this service during the year was 180,441,543 gallons, or a mean of 494,360 gallons daily.

The Anacostia pumping station has been operated without interruption during the year, pumping to the three towers supplying the area east of the Anacostia River. This station is taken care of by four enginemen who work on eight-hour shifts. The water pumped for this service during the year was 213,963,277 gallons, or a mean of 586,201 gallons daily.

The total pumpage for the year at the District pumping station was 1,132,254,105 gallons more than in 1924-25. The greatest amount pumped in one day (June 30) was 47,194,190 gallons; least in one day (August 2) was 34,234,220, and the average dynamic head against pumps was 148.63 feet. The total operating expenses (excluding overhead) chargeable to pumping was \$122,204.97, against \$119,149.87 in 1924-25, making the total operative cost (excluding overhead) of pumping 1,000,000 gallons of water into the mains \$8.50, which is \$0.55 per million gallons less than in 1924-25. The average cost of coal per ton for the year was \$5.76, which is \$0.23 less than in 1924-25.

The station duty for the year was 83,351,926 foot-pounds per 100 pounds of coal. This is 4.85 per cent more than the duty obtained during 1924-25, and represents an annual saving of approximately 461 gross tons of coal. This annual saving may be attributed partly to the increased work done by the high-duty pumps and partly (mainly) to operating the centrifugal units under capacity conditions.

Especially important work done during the year includes satisfactory installations of motor-driven centrifugal pumping units at the Anacostia and Reno stations, respectively, the former having a capacity of 1,500,000 gallons per day, and the latter a capacity some-

what in excess of 1,000,000 gallons per day when operated on the second high service and 3,000,000 gallons per day on the first.

The activity of the various shops have continued as usual.

#### WATER SURVEYS

The water-survey division operated during the year as a general complaint division for the investigation and disposition of all complaint of low pressures, leaks and waste, water in cellars and basements, and excessive pressures. The work of the division is conducted under two classifications. The nucleus of the original water-survey force is assigned to all cases involving prolonged investigations, together with technical work requiring experience and training in the lines involved. Sufficient other work of nontechnical nature is assigned to the force to keep it active at all times. In the accompanying schedule of work performed the activities of this branch are listed under "Water conservation and allied investigations." Special work performed in this classification included a study of flow conditions in Anacostia for use in preparation of project for reservoir for supplying high-pressure storage in that section. Protracted study was made of flow and pressure conditions in the eastern section of the third high service to assist in preparation of supply project to assure satisfactory pressure and supply to that section after the new water supply system is put in operation at Dalecarlia. This work was made necessary by the failure of the new supply system to contemplate the full effect of the shutting down of the Bryant Street pumping station incidental to the inauguration of the new system.

Study of excessive high pressures in the vicinity of Calvert Street and Connecticut Avenue was made and project prepared for extension of lower pressures to this territory.

Brightwood and Reno Reservoirs were chlorinated at such times as condition of water required.

The water-survey division procured and operated power ditch and cellar pumping equipment during the year and rendered service both to the citizens at large and to the construction division of water department at considerable saving in expenses compared to pumping by earlier methods.

Work upon the disposal of routine complaints of minor nature was conducted and classified in attached statement under the heading of "Complaint investigations and repairs to mains." The great quantity of work performed of this nature is fully set forth in this statement. This work is augmented considerably by the use of the emergency leak force in caring for small construction jobs previously taken care of by the construction division.

In general there has been a heavy increase in total work performed with consequent increase in operation costs, but no increase has been made in personnel.

Abandonment of old unused service pipes was continued during the year with vigor. All new cases were disposed of and about 100 cases of arrearages were handled.

**STOREKEEPING**

The cost of operating the storeroom and storage yards for the year was 2.915 per cent of the value of material issued plus equipment disposed of. A comparison of the percentage of cost of operating storeroom and storage yards for the past 12 years follows: 4.676 per cent in 1915 to 2.915 in 1926. The values of material and equipment which was received and issued during the year were as follows: Material—receipts, \$614,519.96; issues, \$617,274.84. Equipment—receipts, \$22,187.99; issues, \$21,659.94.

The value of material on hand at the close of the year was \$199,665.30, and the value of equipment in stock and in service at the close of the year was \$700,567.77.

**TRANSPORTATION**

The transportation equipment at this time is composed of 50 automobile trucks and passenger cars, ranging in capacity from a two-passenger car to a 5½-ton truck. The total number of trucks has been increased during the year by three, and seven old trucks were traded in as part payment for seven new trucks.

The following transportation was furnished to the various subdivisions daily throughout the year: Construction forces, 19 trucks and 8 drivers; engineer division, 4 trucks and 3 drivers; leak repair force, 2 trucks; valve division, 3 trucks; construction foreman, 1 truck; fire-hydrant division, 2 trucks; revenue division, 5 trucks; water-survey division, 6 trucks; pump division, 1 truck; superintendent, 1 sedan.

For use by the construction forces and for storage in our property yards we hauled during the year 35,940,700 pounds of material—about 17,970 tons. From construction jobs we hauled to the dumps 2,346 loads of dirt—about 9,384 cubic yards. And we hauled from the pumping station to various jobs and dumps 447 loads of ashes—about 1,788 cubic yards.

The charges for use of our trucks on general hauling, per 8-hour day, are as follows: Five-ton trucks, with driver, \$18; 3½-ton trucks, with driver, \$16; 3-ton trucks, with driver, \$16; 2½-ton trucks, with driver, \$14; 2-ton trucks, with driver, \$14; 1½-ton trucks, with driver, \$12; tractor and trailer, with driver, \$14.

The revenue derived from our trucks which were engaged in general hauling during the year amounted to \$36,032.25, and the total cost of maintenance and operation of these trucks amounted to \$29,770.99. Particular attention is invited to the low cost of operating the storerooms during the past 12 years and to the healthy financial condition of the general hauling account since the merging of the transportation and storeroom subdivisions.

**REVENUE AND INSPECTION BRANCH****WATER RATES**

In accordance with an act of Congress approved May 10 and July 3, 1926, the rates for water were increased as follows:

The rate for domestic purposes shall be charged according to stories and front feet. On all tenements two stories high or less with front width of 16 feet or less, \$7.03 per annum, in advance. For each additional front foot or fraction thereof greater than one-half, 44 cents. For each additional story or part thereof, one-third of the charges as computed above.

Business premises are rated according to their size, class, volume of business, and water facilities, and rate from \$1.41 to \$25. If the flat rate on business establishments reaches \$25 or more, the owner or occupant is required to install a water meter at his own expense.

A minimum rate of \$6.36 will be charged against all consumers supplied with water through meters, which allows the use of 7,500 cubic feet of water during the year; water used in excess thereof will be charged for at the rate of 6 cents per 100 cubic feet.

TABLE I.—*Cost of work done by the water department for the year ended June 30, 1926*

Heads of expenditures	Per diem and salaries	Material expended, cuts and transporta- tion	Total expendi- tures	Charge to general accounts		Hauling and deposit accounts, debtor
				Mainte- nance	Exten- sions	
Water surveys (detection of leaks)	\$13,106.43	\$1,022.75	\$14,129.18	\$14,129.18		
Maintenance of meters	23,857.99	1,586.24	25,444.23	25,444.23		
Installation of meters	13,223.27	23,942.82	37,166.09		\$37,166.09	
Office of water registrar	92,213.98	4,943.90	97,157.88	97,157.88		
Inspection and repair of house services	23,079.71	3,223.21	26,302.92	26,302.92		
Tapping water mains	8,107.70	12,177.47	20,285.17		20,285.17	
New services installed	778.16	1,738.01	2,516.17		2,516.17	
Engineering (field survey)	40,885.18	1,960.53	42,845.71		42,845.71	
Transportation account	26,564.31	8,695.66	35,259.97			\$35,259.97
Operation and repair of valves, fire hydrants	30,096.46	2,497.04	32,593.50	32,593.50		
Installation of fire and public hydrants	4,334.28	19,736.94	24,071.22		24,071.22	
Water mains laid	180,281.10	336,558.28	516,839.38		516,839.38	
Repairs to leaks	33,653.80	12,402.87	46,056.67	46,056.67		
Maintenance of reservoirs, lodges, and towers	4,554.58	871.78	5,426.36	5,426.36		
Care of grounds	7,857.86	241.48	8,099.34	8,099.34		
Repayment and deposit work	40,865.98	35,856.30	76,722.28			76,722.28
Replacement work, lowering mains, etc.	13,417.53	1,066.80	14,484.33	14,484.33		
Plans, estimates, and tests	22,734.96	770.49	23,505.45	15,670.30	7,885.15	
Care of Bryant Street pumping station	24,953.17	3,596.73	28,549.90	28,549.90		
Operation and repair pumps, Bryant Street station	56,590.08	62,795.54	119,385.62	119,385.62		
Operation and repair pumps, Reno station	5,999.50	745.83	6,745.33	6,745.33		
Operation and repair pumps, Anacostia station	7,382.42	1,334.81	8,717.23	8,717.23		
New pumping equipment	1,005.13	960.09	1,965.22		1,965.22	
Shop work	39,609.34	35,077.98	74,687.32	74,687.32		
Furnishing other District of Columbia offices	5,183.35	61.01	5,244.36	5,244.36		
Gross expenditures	720,336.27	573,864.56	1,294,200.83	528,694.47	653,524.11	111,982.25

#### SUMMARY

Expenditures:		Charge to—	Per cent
Per diem pay rolls	\$561,459.18	Maintenance	528,694.47
Salary pay rolls	158,877.09	Extensions	653,524.11
Total services	720,336.27		44
Material expended, cuts, etc.	573,864.56		56
Gross expenditures	1,294,200.83		
Less transportation and repay- ment, creditors	111,982.25		
Net expenditures	1,182,218.58	Total.	1,182,218.58
			100

TABLE II.—*Statement of the distribution system, including mains laid by the United States, the District of Columbia, and on account of repayment work*

Diameter	In service June 30, 1925	Laid dur- ing year ended June 30, 1926	Abandoned during year ended June 30, 1926	In service June 30, 1926
3-inch.....linear feet.....	88,996	1,320		90,316
4-inch.....do.....	157,486	1,407	843	158,050
6-inch.....do.....	1,471,397	2,402	77	1,473,722
8-inch.....do.....	1,150,432	82,076	830	1,231,678
10-inch.....do.....	9,114			9,114
12-inch.....do.....	457,635	10,914		468,549
16-inch.....do.....	52,771	21,062		73,833
20-inch.....do.....	146,216			146,216
24-inch.....do.....	56,141	1,188		57,329
30-inch.....do.....	69,045	3,121		72,166
36-inch.....do.....	63,844			63,844
42-inch.....do.....	23			23
48-inch.....do.....	44,172			44,172
75-inch.....do.....	600			600
Total.....	3,767,872	123,400	1,750	3,889,612
Stop valves.....	12,008	549	149	12,408
Fire hydrants.....	4,141	153	5	4,289
Public hydrants.....	280	1	1	280
Sanitary fountains.....	23	2		25
Horse fountains.....	156	18	1	173
Public wells.....	43			43

TABLE III.—*Statement of the length and cost of water mains laid from July 1, 1878, to June 30, 1926, paid from water department funds*

Diameter	In service June 30, 1925	Laid dur- ing year ended June 30, 1926	Abandoned during year ended June 30, 1926	In service June 30, 1926
3-inch.....linear feet.....	76,764			76,764
4-inch.....do.....	116,551	736	843	116,444
6-inch.....do.....	1,079,907	547	77	1,080,377
8-inch.....do.....	1,087,072	81,031	830	1,167,273
10-inch.....do.....	6,746			6,746
12-inch.....do.....	395,876	10,914		406,790
16-inch.....do.....	45,620	14,680		60,300
20-inch.....do.....	135,114			135,114
24-inch.....do.....	15,661	1,184		16,845
30-inch.....do.....	31,478	3,121		34,599
36-inch.....do.....	38,244			38,244
42-inch.....do.....	23			23
48-inch.....do.....	14,309			14,309
Total.....	3,043,365	112,213	1,750	3,153,828

Total cost to June 30, 1925..... \$5,628,955.40  
 Total cost for the year June 30, 1926..... 516,839.38

Aggregate cost to June 30, 1926..... 6,145,794.78

#### 1. Statement of collections

##### Water rents:

Flat rate.....	\$99,272.04
Meters.....	946,249.76
Building purposes.....	6,808.76

Total.....	1,052,330.56
Water-main tax, principal and interest.....	176,799.22
Miscellaneous receipts.....	1,142.99

Taps and stopcocks.....	1,230,272.77
	23,955.57

## 2. Statement of cash receipts of the water-rent fund for the fiscal years from June 30, 1922, to June 30, 1926

Year	Water rents	Water-main tax, principal and interest	Miscellaneous receipts
1922	\$943,182.45	\$86,425.56	\$2,455.40
1923	975,305.29	132,372.29	959.21
1924	1,035,858.89	109,843.31	619.72
1925	1,023,603.98	141,089.86	935.42
1926	1,052,330.56	176,799.22	1,142.99
Total	5,030,281.17	646,530.24	6,112.74
1927 <sup>1</sup>	1,273,000.00	176,000.00	1,000.00
1928 <sup>1</sup>	1,284,000.00	165,000.00	1,000.00

<sup>1</sup> Estimated.

## 3. General information

Consumption of water through meters:	Cubic feet
District meters	650,551,700
District meters, municipal buildings	116,402,500
Private meters	965,561,000
Private meters, charitable institutions	33,500,000
Total	1,766,015,200

Meters in service	In use June 30, 1925	Installed, 1926	Aban- doned, 1926	Total in use June 30, 1926
District meters	68,472	2,503	231	70,744
District meters, municipal buildings	284			284
Private meters	3,976	292	100	4,168
Private meters, charitable institutions	203	9		212
Private meters, fire service, etc.	482			482
Total	73,417	2,804	331	75,890

Average cost of reading meters	\$0.190
Average cost, computing and making bills	.236
Average payment for premises in which meters were installed (District meters only)	6.500
Average payment (flat-rate accounts)	8.270

Premises receiving an allowance of free water:	
Number of institutions	187
Number of meters	212
Cubic feet of water consumed	35,500,000
Allowance of free water	40,854,113
Number of institutions exceeding allowance	29

Water services:	
In use June 30, 1925	84,001
Installed, 1926	4,756

Total	88,757
Abandoned, 1926	618

In use June 30, 1926	88,139
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Metered	75,890
Not metered	12,249

Percentage of services metered	86.1
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## REPORT OF THE SANITARY ENGINEER

WASHINGTON, D. C., August 16, 1926.

SIR: The annual report of the sanitary engineer, covering the fiscal year ended June 30, 1926, is submitted herewith.

The work of the division has continued to increase and more office space is becoming most urgent. The room referred to in the last annual report, measuring 41 by 28 feet, is now occupied by 27 employees of two sections with their desks, drawing tables, chairs, and lockers instead of the 21 employees noted last year.

The minimum dilution figure—that is, the flow in cubic feet per minute—per thousand of population, based on an estimated population of 500,000, was 103 on September 10, 1925. The figure fell below 200 on 40 days during the year and there was a period from September 16 to October 4, 19 days, when it averaged 122 and did not rise above 142. There is a certain factor of safety in these figures inasmuch as the total population of the city is not served, but that factor is rapidly being lost and some form of sewage treatment is becoming imperative.

Increased appropriation for service sewers is again stressed. Although appropriations have been more liberal for this class of work for the last three years and supplemental estimates have been granted, the work continues to lag behind the demand, and with the suburban development more expensive because of the greater lengths necessary, matters bid fair to become worse.

During the year the transportation service became 100 per cent motorized, resulting in greater efficiency throughout the division where transportation is required.

The Bureau of Mines made a very exhaustive test and study of the steam generating plant at the main station during the year and suggested several betterments which will be made as soon as plans are completed and money is available.

The following is a summary of the sewerage and sewage disposal systems as of June 30, 1926.

## Length of sewerage system:

Main sewers-----	miles-----	160.24
Pipe sewers-----	do-----	682.57

Length of sewage disposal system-----	do-----	842.81
		38.77

Total length-----	do-----	881.58
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Cost of the sewerage system-----	\$18,092,893.47
Cost of the sewage disposal system-----	6,151,851.67

Total cost-----	24,244,745.14
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The sanitary engineer is very highly appreciative of the loyal and efficient services of the employees of the sewer division whose cooperation made the accomplishments of the year possible.

A brief résumé of the year's activities follows.

## OFFICE ENGINEERING

This section of the division might be considered as being divided into two subheads, (1) office engineering in relation to the sewer

division proper, (2) office and field engineering as is necessary and advisable within statutory limitations in connection with all work done by the public service corporations.

Subhead (1) is charged with all computing, designing, and drafting necessary to the operation, maintenance, and further development of the sewerage system; with the preparation of the necessary data as well as the actual writing of indorsements on such jacketed engineer department files as are referred to it; with engineering drafting and clerical work arising from the necessary collaboration between this and other offices, and the recording of office records closely allied to engineer work.

During the year the following work was performed under sub-head (1): Incidental to 135 contracts, drawings were made, specifications prepared, and proposals scheduled; in addition, 35 other drawings were prepared covering such work as a minor pumping station, junction, and regulator chambers, special catch basins, etc., as well as 59 miscellaneous plats; 8 major drainage studies were made involving a finished map indicating general and subareas as well as the collaboration of run-off and capacities; 19 roadway and 395 sidewalk schedules involving 477 and 395 separate items or locations, respectively, were studied and where advisable new or the replacement of defective work was recommended in advance of the proposed paving; 91 surface division street grade maps and 223 alley grade maps of the same division creating new or revising existing grades were studied and approved or disapproved, according to their bearing on existing or future underground construction; 53 cases concerning the opening or closing of alleys were studied as to their effect upon the drainage system and were approved or conditionally approved; 48 notices accompanied by blue prints carrying pertinent information were forwarded to the assessor covering cases where assessment has become due on account of a connection from parcel property to or the subdivision of a parcel abutted by a service sewer; 15 rights-of-way deeds and accompanying plats were written and made, respectively, for the purpose of acquiring an easement for sewer construction across private property; 19 maps on a scale of 100 feet to the inch covering the outlying sections of the District showing all streets, grades, subdivisions, etc., were made; maps of the division were kept posted to date by the recording thereon of 687 cases of separate construction work, 665 subdivision and 249 splits; the division's privy map was kept posted throughout the year, which work indicated an existence of 3,359 privies, an increase of 195 over the previous year; 2,479 "plumbing slips" were issued in connection with applications for building permits involving the erection of 4,367 dwellings and 195 apartment houses; on 891 jacketed engineer department files blue prints were prepared and indorsements written, 675 of which eventually carried ordered work and made necessary the preparation and forwarding to the assessor of 710 notices of pending assessments; data was prepared for and the actual writing done in connection with the creation of 126 letters in answer to communications referred to this division; card indexes reflecting all new construction, subdivisions, completion reports, record sheets, area drains, Y branches, standard drawings, rights of way, sewers construed as service sewers, and subsoil drains were kept posted to date.

Subhead (2) is charged with the preparation of all permits for and the supervision of all work done by the various public-service corporations and by private parties in public space; involving a study of each application for a construction permit and the writing therein such locations as will avoid interference with existing or future construction and assure economical and orderly occupation of public space along predetermined and systematical lines. All underground construction is regularly inspected during construction, and upon completion final measurements are made and recorded in the office upon maps and record sheets. All surface division paving schedules are studied, and recommendations made to the Public Utilities Commission through the committee on extension of underground construction to require the various public service corporations to make all necessary or desirable extensions in advance of new paving work in order to avoid cutting the new street surface in an unreasonable time.

During the year 4,360 permits were prepared upon application, 7,485 inspections made of work under construction by the public-service corporations, and 67, 50-feet-to-the-inch maps were completed.

The following is a summary of work performed which required preparation of permits, field inspection, and location, as well as office mapping and recording.

Gas mains laid.....	miles.....	27.44
Electric conduits laid.....	do.....	32.22
Telephone conduits laid.....	do.....	21.84
Manholes constructed.....		2,312
Houses connected with gas.....		4,306
Houses connected with electricity.....		5,291
Vaults constructed in public space.....		20
Steam mains and conduits laid across public space.....		3
Fuel-oil tanks installed in public space.....		54
Fuel-oil pipes laid in public space.....		122
United States Government refrigerating lines laid in public space.....		1
Gasoline fill pipes to curb.....		3
Compressed air lines for inflating auto tires.....		7
Drains to sewerage system for manholes, fire hydrants, air valves, water-troughs, etc.....		265

#### SURVEY AND CONSTRUCTION

The work of this section covers all preliminary and detailed survey work required in connection with office studies and design, and the acquiring of all necessary field data for special reports. In addition all field work incidental to sewer construction performed under contract and by day labor is handled. All sewers built under contract are supervised and minor sewers with their appurtenances and storm-water catch basins are constructed by District forces.

Work performed during the year under all contracts involved the construction of 20.46 miles of sewers, costing \$707,532.80.

Work performed by District forces involved the construction of 10.33 miles of sewers, 357 manholes, 391 catch basins, 1 regulator chamber, 1 stormwater outlet, 103 special Y and T pipes inserted, and 31 catch basins reconstructed at a total cost of \$280,594.09.

Sewer construction was distributed throughout the District as indicated below:

Section	Linear feet	Cost
1. Within the old city limits.....	21,044.44	\$161,541.36
2. County west of Rock Creek.....	50,010.07	347,190.22
3. County east of Rock Creek.....	48,290.24	289,600.61
4. County west of Anacostia River.....	31,675.38	143,054.90
5. County east of Anacostia River.....	11,556.75	46,739.80
Total.....	162,576.88	988,126.89

Of the above sewers 120,463.03 linear feet were service sewers costing \$521,027.33 and serving 1,773 houses. These figures show the average length of sewer to each house served to be 67.94 linear feet at an average cost of \$293.85 per house.

Incidental to the survey and construction work of this section, 269 assessment plats showing the construction of service sewers abutting assessable property were forwarded to the assessor. Five letters were forwarded to the health officer with notice of newly constructed sewers abutting existing houses. Permits were granted for the construction of 415 area drains, 122 depressed runways, and 15 subservice sewer drains, all inspected and card indexed. Three hundred and thirty-six grade sheets for work constructed during the year have been drawn up and filed. One hundred and sixty-seven measure sheets for work done under contract were made during the year and copies filed for reference. Seventy-four and fifty-six hundredths miles of profile were run and plotted.

The fiscal year ended with work in progress on 10 contracts and with 34 contracts awarded on which no work has been performed.

The work of this section has increased by approximately 33 per cent during the fiscal year, and an increase in personnel and in office space in which to work is urgently required.

#### OPERATION AND MAINTENANCE

The work of this section covers the collection of rainfall data, recording flow in sewers, annual inspection of trunk sewers, cleaning of trunk sewers, cleaning and flushing of pipe sewers, basin cleaning, inspection and maintenance of sewage regulators, sumps and tide gates, cleaning storm-water outlets, gravel basins and inverted syphons, and investigating complaints.

Data for run-off studies were gathered from the records of 11 automatic rain gauges, 21 pot rain gauges, and 140 cup gauges which are maintained by the sewer division and distributed over an area of 50 square miles.

On September 16, 1925, there occurred a heavy thunder storm about noon which overcharged the New York Avenue and F Street NW., branch of the Easby Point high level interceptor and the New Jersey Avenue trunk sewer between Tenth and Sixteenth Streets NW. Two basements were flooded by the overcharging of public sewers and two others due to the incapacity of catch basins to carry the water off quickly enough.

The annual inspection of trunk sewers covered 80.94 miles of sewers at a cost of \$860.04. The general condition of the trunk sewers is good. A few minor repairs were found necessary, but the silt deposit is growing less each year.

During the fiscal year 67 miles of pipe sewers and 156 basin connections were cleaned, 202 house connections were located, and 84 old sewers were examined. In connection with this work, 10,786 cubic feet of silt were removed from the pipe sewers, 1,411.5 miles of pipe sewers and 22,246 manholes flushed. The flushing work was increased by more than 50 per cent over the previous year due to the replacement of reels and bridges by tank trucks during the last half of the fiscal year. The number of obstructed sewers is still increasing, having risen from 86 in 1923 to 147 during the present fiscal year. This increase in obstruction is due to the increase in number of the flushing tank trucks used by the city refuse division in cleaning the streets, flushing the dirt from the streets into the sewers.

There were 35,464 basins cleaned in the city proper, from which were removed 9,301 cubic yards of silt at a cost of \$22,753.27, and in the county 9,685 basins were cleaned, from which 3,770 cubic yards were removed at a cost of \$9,607.45. The city basins were cleaned on an average of once every 38 days and the county basins on an average of once every 60 days. In connection with this activity 290.26 cubic yards of silt were removed from 129 garage traps, the cost being borne by the owners of the traps, 905.67 cubic yards of silt were removed from the ink chambers of the Bureau of Engraving and Printing, 138.76 cubic yards from the Woodridge substation, 52.07 cubic yards from the Rock Creek pumping station, 135 cubic yards from the Poplar Point pumping station, and 10.92 cubic yards from the Kenilworth regulating chamber.

It has been noted that in several instances the bends in the garage trap outlets, designed to prevent the escape of oils and grease into the sewers, have been broken off, apparently with the intention of avoiding the expense of cleaning, and many traps have been allowed to overflow into the streets before requesting their cleaning. Inasmuch as there are now some 1,500 garage traps in the city, it is recommended that an inspector with transportation be employed to cope with the situation and make the regular inspections called for under section 124-c, subdivision (d), of the Plumbing Code.

During the year 9,093 inspections were made of the 92 tide gates, 18 regulators, 129 sumps, and 14 screens of the sewerage system, at a cost of \$2,361.98.

One thousand eight hundred and thirty-one complaints were received, inspected, and disposed of during the fiscal year, classified as follows: 147 public sewers obstructed, 358 basins obstructed, 63 for bad odors emanating from public sewers, 21 of dead animals in basins, 206 basin tops broken, 83 basin tops reset, 14 lost articles, 1 obstructed garage trap, 317 obstructed house laterals, 196 broken manhole covers, 3 accidents, 4 flooded cellars, and 420 miscellaneous.

The section cooperated with the city refuse division in the removal of snow by stationing inspectors at all manholes, opened for that purpose, to prevent stoppage of the sewers by excessive dumping, this service being rendered twice during the year, from Janu-

ary 9 to 13 and February 10 to 16, a total of 29,695 cubic yards of snow being dumped into the sewers on these occasions under proper supervision.

#### PUMPING SERVICE

The duties of this section consist in the maintenance and operation of the steam-driven main sewerage pumping station and the three electrically driven substations. In conjunction with this work there is maintained a machine shop, blacksmith shop, carpenter shop, paint shop, and cement shop. In addition to the operating force there are employed electricians, steam fitters, screen operators, etc., together with a clerical and computing force to properly record and study the performance of the various stations.

The total pumpage at the various stations during the year was as follows:

	Gallons
Main station-----	30,874,530,000
Popular Point substation-----	633,872,267
Rock Creek substation-----	470,262,000
Woodridge substation-----	15,401,411

Eliminating Rock Creek and Woodridge substations, which deliver their discharge to the main station, the above shows a mean total daily pumpage of 86,324,389 gallons, an increase of 17 per cent over the previous year.

The total coal consumption at the main station for the fiscal year was 4,641 tons, of which about 13 per cent should be charged to bunker loss, uses by the incinerator and blacksmith shop, etc.

There were removed from the sediment chamber 1,912 cubic yards of silt; 856.3 tons of débris were removed from the screens, pressed, and incinerated; 16 tons of floating matter removed from the skimming tank and incinerated; 404.9 tons of ashes were removed from the boiler ash pits, and 84.9 tons of ashes from the incinerator. All silt and ashes were deposited on the flats of the Anacostia River.

The Bureau of Mines conducted a test of the steam plant during the year and report that the boiler and economizer were operating at about 70 per cent efficiency. It is believed that this can be improved to about 84 per cent or 85 per cent with a change in the design of the combustion chambers of the boilers, plans for which are now under way. The bureau also recommended the installation of some kind of water treatment and a new economizer, which work will be done as finances permit.

Betterments made in the main station during the year include the installation of a carbon dioxide recorder in the flues and a flue gas thermometer, reversal of flow through the economizer, and repair of air leaks in the breeching of the economizer.

There were no periods of extreme high water in the Potomac River during the year. The maximum flow, 69,000 second-feet, occurred on February 26, 1926, and the minimum flow, 862 second-feet, on September 10, 1925, the mean flow for the year being 7,628 second-feet. The maximum range of the tide in the Anacostia River as registered by an automatic gauge was 7.2 feet. The maximum range for one day was 4.9 feet.

**CLERICAL**

The work of this section includes the preparation of requisitions and vouchers, records of cost of day labor and contract construction, preparing pay rolls and pay-roll analysis sheets, material and equipment accounting, control of division finances, and the preparation of estimates and data for their defense.

During the year pay rolls aggregating \$644,216.31 were prepared, audited, and approved for payment; requisitions were prepared and approved for supplies, tools, and equipment amounting to \$119,805.66, and vouchers recorded and approved for payment upon delivery of same. Construction material was requisitioned and paid for in the sum of \$205,186.33. Contract construction vouchers were audited and approved aggregating \$474,106.65 and the surface division was paid \$38,158.25 for resurfacing work done over sewer construction work. All the above expenditures have been recorded on card-record system.

Complete ledger control was maintained over all appropriations throughout the year and balances in the various appropriations were computed semimonthly and checked with the auditor. At no time during the year did the expenditures exceed the apportioned allotment made the 1st of July in pursuance of the provisions of the "antideficiency act." During the year the general reserve of 5 per cent withheld from the various appropriations was released and expended. Financial statements were prepared monthly to permit a study of available balances, and through a study of these statements the expenditures were kept within the limits allotted and an overobligation at the close of the year avoided.

Daily report of construction work in progress on the sewerage system and the sewage disposal system and the work of operation, maintenance, and repair of same, supervision and inspection of work in progress by the various public-service corporations of subsurface construction was prepared and submitted to the sanitary engineer. The annual inventory of the storeroom and storeyard was taken and report of all expendable and nonexpendable material and equipment made and forwarded to the auditor.

A total of 109,236 reports were handled by the section during the year, the total expenditures of the division amounting to \$1,481,473.20.

**TRANSPORTATION**

This section is in charge of the transportation of the division and the upkeep and minor repair work on same, and the upkeep and repair of all other internal-combustion equipment of the division.

There were maintained during the fiscal year 51 automobiles and 2 tractors, the total mileage of the automobiles being 433,902, an increase over the previous year of 123,648 miles. Of this amount 166,745 miles was for passenger-carrying machines and 267,157 miles for trucks.

After the purchase of new equipment during the first part of the year the transportation of the division was 100 per cent motorized.

The most urgent need of the section is more garage space.

To the ENGINEER COMMISSIONER.

J. B. GORDON, *Sanitary Engineer.*

**REPORT OF THE WHARF COMMITTEE**

WASHINGTON, D. C., August 12, 1926.

SIR: The wharf committee has the honor to submit the following report for the fiscal year ended June 30, 1926:

During the year leases of the following tenancies expired:

1. Johnson & Wimsatt, foot of Ninth Street.
2. Johnson & Wimsatt, foot of Twelfth Street.
3. Washington-Colonial Beach Steamboat Co., foot of N Street.
4. Potomac Steamship Co., foot of Eighth Street.
5. Judge Daniel Thew Wright, slip adjoining sand wharf.

New leases were entered into with Johnson & Wimsatt, the Washington-Colonial Beach Steamboat Co., and James O. Holmes. The new lease with Johnson & Wimsatt for wharf property at the foot of Twelfth Street provides that the large warehouses on the site shall be vacated on or before March 15, 1929. This was done with a view to demolishing all buildings and clearing the site.

The wharf occupied by the Washington-Colonial Beach Steamboat Co. has been rebuilt at a cost of \$6,000. In order to prolong the life of the uncovered portion of the wharf, the tenant has agreed to apply a coat of road oil or other similar material. This treatment has been resorted to by the District on certain of its timber structures with good results.

The lease of the Potomac Steamship Co., which expired on June 15, 1926, was not renewed. This wharf has been condemned and all buildings on the site have been demolished and removed. Repairs to a small section of the wharf have been made with a view to providing docking facilities for the steamer *E. Madison Hall*, owned by James O. Holmes. This was necessary by reason of the fact that a cave-in occurred at the adjoining wharf which this tenant had been occupying. The wharf which failed consists of an earth fill confined by masonry walls supported on a timber platform constructed at low tidal elevation, the entire structure being founded on timber-bearing piles. Undoubtedly the constant strain on a mooring pile which had been driven through the structure was responsible for the cave-in. This wharf has since been barricaded and posted as being unsafe.

The lease of Judge Wright was not renewed.

The total revenues from wharf rentals, including the fish market, amounted to \$36,718.71.

Several applications for water frontage at the foot of Thirtieth Street and at the foot of Wisconsin Avenue on the Georgetown Channel are pending.

The wharf committee desires to call attention to the condition of the wharf occupied by the fire boat company. This wharf can not be used with safety for a much longer period, and it is believed that some arrangement should be made to provide accommodations for this unit of the fire department at the new concrete wharf on Water Street between M and N Streets. Space could be provided by widening the wharf to the width originally contemplated and by erecting another head house adjoining the present quarters of the harbor precinct. The police department could use the downstream side of the wharf and the fire department the upstream side, there being sufficient space for both activities. This would not interfere

in any way with the plan for the proposed general improvement of the water front.

The inspector of buildings reports that the morgue wharf is in a very bad condition. In the opinion of the wharf committee, the morgue should be moved to another location. Of 172 inquests held during the last fiscal year, only 22 were cases of drowning.

In the development and improvement of the water front along the Washington Channel, provision should be made for preserving the municipal sand and workhouse wharves. The present location has many advantages over any site that might be selected on the Anacostia River front. During the fiscal year approximately 45,000 cubic yards of sand and screened gravel and 3,000,000 brick were received at these wharves for sewer and street work and for the construction of school buildings, etc. Water terminal facilities constitute a very valuable adjunct to the conduct of municipal activities.

The marine railways at the Capital Yacht Club have been reconstructed and a brick motor building erected. These railways are electrically operated and have sufficient capacity to accommodate river craft weighing 200 tons and having a length of 100 feet, breadth of 28 feet, and draft of 9 feet. These railways are operated by Mr. G. W. Forsberg. The dilapidated board fence between the fish market and the railways has been removed and a "cyclone" wire fence erected in its place.

Since 1920 about 35 buildings along the water front of the Washington Channel have been demolished. Most of these structures were unsightly and dilapidated. The policy of the wharf committee is to remove buildings of this type as rapidly as possible.

Attention is called to the availability of the water front on the Washington Channel between the fish market and Fourteenth Street as a site for a new farmers' produce market. It now appears that the central heating, lighting, and power plant authorized by Congress about 13 years ago will not be built on the Washington Channel between Thirteenth and Fourteenth Streets SW. The establishment of a farmers' produce market on the water front should tend to encourage a resumption of water traffic in vegetables, fruits, and other commodities from the rich tidewater counties of Maryland and Virginia. Moreover, railroad transportation is available across the street. Because of the location of the municipal fish market on the water front, it would appear that a farmers' produce market adjoining on the west would be a logical extension of market facilities.

There has been a gradual change in the character of southwest Washington in the last 10 or 15 years from residential to commercial and industrial, so that a farmers' produce market at this location would not appear to be the least objectionable. As a matter of fact, about 70 squares in this section of the city have been zoned for commercial or industrial uses, and there appears to be a tendency to establish large warehouses, refrigerating plants, and other structures for the storage of meats and other foodstuffs in southwest Washington. The property in the immediate vicinity of Fourteenth and Water Streets has been zoned for industrial and second commercial uses. Upon completion of the Federal public-building program recently authorized by Congress there will be a number of large Government buildings within a short distance of this site.

The total frontage of wharf property along Water Street is 9,275 linear feet, of which slightly over one-half is under Federal jurisdiction. The frontage between the south curb line of N Street south and Thirteenth Street west is under the control of the Commissioners of the District of Columbia and is used and occupied by the municipal fish market and wharves, the morgue, the harbor precinct, headquarters of the fire-boat company, the workhouse and sand wharves, all of which are municipal activities; and also by lumber and cordwood merchants, warehousemen, boathouses, and various steamboat companies operating passenger and freight steamers.

The water front along the Georgetown Channel is under private control, with the exception of the termini of streets. The space at the foot of Thirty-first Street NW., between building lines, is leased by the Cranford Co.

Along the Anacostia River the United States Navy Yard occupies the frontage on the city side between Second and Eleventh Streets SE. The sewage pumping station and yard occupies the frontage between First and Second Streets SE. The intake of the Capitol power plant is located at the foot of First Street SE. The only frontage along the Anacostia River under lease is that between the building lines of Q Street SE.

Acknowledgments of appreciation are due to water-front tenants for their cooperation in the efforts of the wharf committee to improve conditions along the Washington Channel.

ROLAND M. BRENNAN,  
*Chief Clerk, E. D., Chairman,*

D. E. McCOMB,  
*Engineer of Bridges,*

H. R. LOHMAN,  
*Harbor Master,*

*Wharf Committee, District of Columbia.*

To the ENGINEER COMMISSIONER.

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#### REPORT OF THE BOARD OF EXAMINERS OF STEAM ENGINEERS

WASHINGTON, D. C., August 20, 1926.

GENTLEMEN: The board of examiners of steam engineers have the honor to submit their annual report for the year ended June 30, 1926.

From April up to date the number of candidates applying for examination has increased. This is due to a recent strike by the steam-shovel operators.

It is regretted that the classification of steam engineers is not enforced, for, first, it results in financial loss to the District; second, it might be the direct cause of a serious explosion due to a third-class engineer operating a first-class power plant when he has been examined as to his fitness to operate only a small or minor plant. Yet he can take charge of the largest power plant in the District with a third-class license, which should restrict him to a plant of 25 horse-power and under; third, there is no incentive for an engineer to study to prepare himself for a higher grade.

An order of the commissioners classifying engineers in the District is in force at this time, but has not been enforced in recent years.

Third class, 25 horsepower.

Second class, 75 horsepower.

First class, any horsepower.

The board earnestly recommends that this order be enforced by the police and that a period of six months be given for readjustment so as not to disturb existing conditions. In other words, all engineers would have six months to study for the grade required to operate the plant in which they are employed.

	Meetings held	Applicants examined	Applicants passed	Applicants not competent	First class	Second class	Third class	Steam pressing machines	Special class	Internal combustion	Electric power	Stanley steamer
1925												
July.....	5	30	16	14	-----	-----	3	2	4	2	4	1
August.....	4	24	13	11	-----	-----	5	5	2	1	-----	-----
September.....	4	36	19	17	-----	1	3	4	5	4	2	-----
October.....	5	25	13	12	1	1	3	4	2	1	-----	1
November.....	4	21	8	13	-----	1	1	3	2	2	1	-----
December.....	4	20	9	11	-----	1	3	-----	2	3	-----	-----
1926												
January.....	5	24	9	15	1	-----	4	-----	1	-----	2	1
February.....	4	17	6	11	-----	-----	2	-----	3	1	-----	-----
March.....	4	24	11	13	2	-----	4	-----	3	1	-----	1
April.....	4	128	49	79	4	-----	4	1	27	11	2	-----
May.....	5	40	17	23	-----	1	3	-----	6	5	2	-----
June.....	4	27	15	12	1	-----	4	-----	3	6	1	-----
Total.....	52	416	185	231	9	5	39	19	60	35	14	4

Respectfully submitted.

E. F. VERMILLION,

H. BOESCH,

T. S. TINCHER,

*Members Examining Board, Steam Engineers.*

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

#### REPORT OF THE BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS

WASHINGTON, D. C., August 10, 1926.

GENTLEMEN: We have the honor to submit the following report for the year ending June 30, 1926:

Buildings on which action was taken in response to notices served under the act of Congress creating the board for the condemnation of insanitary buildings during the year ending June 30, 1926:

Number of buildings	Examined	Condemned	Razed	Repaired	No action warranted	Pending	Value repairs
In streets.....	678	199	161	385	95	37	\$46,615
In alleys.....	255	70	62	55	119	19	6,800
Total.....	933	269	223	440	214	56	53,415

## BUILDINGS ACTED UPON SINCE THE CREATION OF THE BOARD FOR THE CONDEMNATION OF INSANITARY BUILDINGS TO JUNE 30, 1926

In streets-----	5,525	3,054	2,247	2,279	932	37	\$393,242
In alleys-----	5,646	2,270	1,125	7,637	3,234	19	64,205
Total-----	11,171	5,324	3,372	9,916	4,166	56	457,447

Number of buildings taken down by the board during the year-----	21
Cost of razing 21 buildings and putting premises in a safe and sanitary condition-----	\$315
There are 27 buildings condemned for insanitary conditions standing and the board is without money to pay for their removal.	
Number of board meetings held during the year ending June 30, 1926-----	25
Number of 20-day preliminary notices served-----	215
Number of condemnation notices served-----	133
Number of condemnation cards affixed to buildings during the year ending June 30, 1926-----	105
Number of miscellaneous visits made in connection with the examination, service of various notices, repairs being made to buildings, the demolishing and removal of buildings condemned by the board-----	2,125
Estimated number of people required to secure other living quarters through action of the board-----	738
Estimated number of occupants of dilapidated and insanitary buildings benefited by repairs to buildings through action of the board during the year ending June 30, 1926-----	2,640
Estimated value of repairs made to dilapidated buildings through action of the board during the year ending June 30, 1926-----	\$53,415
Estimated value of repairs to dilapidated and insanitary buildings by the board since June 1, 1917 to June 30, 1926-----	\$457,447

Attention is invited to the fact that there are now approximately 2,400 dwelling houses located in the public alleys of the District of Columbia and housing approximately 9,000 people.

## Alley law:

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That from and after the passage of this act it shall be unlawful in the District of Columbia to erect, place, or construct any dwelling on any lot or parcel of ground fronting on an alley where such alley is less than 30 feet wide throughout its entire length and which does not run straight to and open on two of the streets bordering the square, and is not supplied with sewer, water mains, and gas or electric light.

\* \* \* \* \*

The use or occupation of any building or other structure erected or placed on or along any such alley as a dwelling or residence or place of abode by any person or persons is hereby declared injurious to life, to public health, morals, safety, and welfare of said District; and such use or occupation of any such building or other structure on, from, and after the 1st day of July, 1918, shall be unlawful. Approved, September 25, 1914.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the operation of the second paragraph of section 1, relating to the use or occupation of alley buildings as dwellings, of the act of Congress approved September 25, 1914, entitled "An act to provide, in the interest of public health, comfort, morals, and safety, for the discontinuance of the use as dwellings of buildings situated in the alleys in the District of Columbia," be, and the same hereby is, postponed until June 1, 1923. Approved, September 6, 1922.

## EJECTMENT OF ALLEY DWELLERS

Alley law: There were two cases brought in the Supreme Court of the District of Columbia, *Norment v. Rudolph et al.*, seeking to

restrain the commissioners from enforcing the provisions of the alley law so far as concerns the property of the petitioners. An injunction was issued in each case and the cases were appealed to the court of appeals. The Norment case was dismissed by consent of counsel, as the owner obtained an opportunity to sell advantageously. The Lockwood case, still pending in the court of appeals, No. 4084, is sufficient to test the questions raised as to the application of the law. The court of appeals, without passing upon the law at all, remanded it for further proceeding on the score that it was a criminal prosecution and should have started in the police court.

The following cases were filed in the police court March 27, 1925:

Franklin P. Nash et al-----	No. 822891
James E. White et al-----	No. 822892
Charlotte E. Lockwood et al-----	No. 822893
Spiros Konmaris et al-----	No. 822894

Motions to quash and demurrers were filed March 27, 1925. All cases were consolidated and argued together as test cases. At the request of the court briefs were filed by both sides. The police court now has the matter under advisement.

Respectfully submitted.

R. A. WHEELER,  
*Major, Corps of Engineers, U. S. Army,*  
*Assistant Engineer Commissioner.*

W. C. FOWLER, M. D.,  
*Health Officer.*

JOHN W. OEHMANN,  
*Inspector of Buildings.*

A. S. J. ATKINSON,  
*Inspector for the Board for the  
Condemnation of Insanitary Buildings.*

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

#### REPORT OF SUPERINTENDENT OF THE DISTRICT BUILDING

WASHINGTON, August 25, 1926.

GENTLEMEN: I submit for the fiscal year ended June 30, 1926, my report on the care of the District Building, which includes the operation of the power plant, woodwork and paint shop, blue print and photograph shops, and the electrical department:

#### POWER PLANT

The consumption of coal totaled 2,212.51 tons, which averaged 15.6 per cent ash. There were 826½ cubic yards of ashes removed at a cost of \$413.25. The total number of kilowatt-hours generated was 552,580, an increase of 31,372 as compared with the past fiscal year, and an increase of 122,830 kilowatt-hours as compared with the fiscal year ended June 30, 1921. During the past fiscal year there were used for lighting 406,790 kilowatt-hours; for elevators, 50,750; and for motors, 95,040. The pneumatic-tube system was in operation

2,188 hours, the heating system 4,836 hours, the ventilating system 1,394 hours, and the cooling system 2,550 hours.

There were numerous repairs made to the power plant, many of which were taken care of by the employees of that department, thus keeping our repair expense at the minimum. No. 3 boiler was retubed at a cost of \$1,275; smoke consuming arches were rebuilt in No. 1 and No. 3 furnaces; gaskets were replaced in six 10-inch, high-pressure flanged joints; turning of commutator and making repairs to bearings on air compressor for the pneumatic-tube system, air washers were rebuilt, and 150 nozzles were renewed together with general repairs to boiler and engine rooms.

There was purchased one new feed pump at a cost of \$290. The increased load placed upon the power plant necessitated the use of a larger pump and as renewal was necessary we took this opportunity to secure a larger one. We also purchased 50 new leather carriers for the pneumatic-tube system at a cost of \$393.50; 6 new safety gauge cocks at a cost of \$28.50; and replacement parts for stokers totaling \$238.

It will be necessary, in the near future, to make repairs to the Fairbanks track scales and the track leading from the coal vault to the boilers, this will cost approximately \$250.

Nos. 3 and 4 boilers have been retubed during the past two years, leaving two boilers yet to be retubed, as funds are available. These tubes have been in use since 1908. The approximate cost will be \$1,000 per boiler. It will be necessary to make repairs to the covering of our high-pressure steam main during the present fiscal year.

#### ELECTRICAL

The routine work of the electrical department included the care of the passenger and sidewalk elevators, operating boards, inclosures, cables, grids, brake shoes, plates and contacts. Electric fans, adding machines, batteries, fuses and lights were also taken care of by this department.

Replacements were made as follows: Five sets cork-lined brake shoes, 300 carbon arc arrestors, 25 copper plates, 30 copper webs, and plunger contacts. Approximately 25 lighting fixtures were replaced with new ones. It was necessary to rebabbit and reshackle the elevator hoist cables on Nos. 3 and 6 passenger elevators, and to replace commutators on two armatures, and to rewind one armature.

Numerous changes were made in the lighting arrangement for the betterment of lighting conditions for the various departments. New lighting fixtures were placed on cashier cages and desk rails for the collector of taxes; a new pipe line was laid in the sub-basement for the air compressor which is used in conjunction with the pneumatic-tube system.

It is recommended that the following old equipment be replaced with new: Elevator signal system, which will cost approximately \$3,000; new elevator controls for passenger cars, at an approximate cost of \$1,540; new boards, motors, and hoists, using present guides and cages, at an approximate cost of \$8,500; and new panel boards and switches at an approximate cost of \$3,500.

## WOODWORK AND PAINT SHOP

Repairs were made throughout the building by this department. Walls and ceilings were painted in many of the offices and corridors; two cashier cages were built for the collector of taxes; one archway was closed and two doors installed for the director of traffic. Due to the interchanging of offices during the past year many departments were moved which required numerous alterations. Doors, windows, window blinds, locks, furniture, etc., were repaired by this department.

## PHOTOGRAPH AND BLUE-PRINT SHOP

There were 82,328 square feet of blue printing completed for the District government at a cost of \$3,730.55, and photographs and photostats at a cost of \$511.60.

W. H. HOLCOMBE,  
*Major, Corps of Engineers, U. S. Army,*  
*Superintendent.*

E. P. BROOKE,  
*Assistant Superintendent,*  
*District Building.*

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

## REPORT OF SUPERINTENDENT MUNICIPAL GARAGE

WASHINGTON, D. C., August 11, 1926.

SIR: I have the honor to submit the following report showing the operations of the municipal garage for the fiscal year ended June 30, 1926:

Forty-four automobiles were maintained and kept in running condition for the various departments of the District of Columbia by the mechanical and laboring forces. The duties of these forces consisted in repairing automobiles, carrying mail from the city post office to the District Building, driving for departments without automobiles or drivers, greasing, oiling, and washing cars at night, and also acting as watchmen. The District has an automobile repair and painting shop at Second and Bryant Streets NW., in connection with this garage, where all repair work and painting is done for the water department, sewer division, District of Columbia repair shop, Board of Public Welfare, and others.

The garage was kept open at all times for urgent and necessary transportation.

The operating cost for the maintenance of the 44 automobiles including gasoline, oil, tires, labor, and miscellaneous supplies, amounted to \$19,604.77, or an average of \$445.56 for each car, or \$0.0525 per mile.

Repair parts used in automobiles cost \$2,979.40, an average of \$67.71 for each car, or \$0.0122 per mile.

The mileage of the 44 automobiles amounted to 283,184 miles, or 6,436 miles per car, an average increase over the previous year of 1,083 miles per car, and a decrease of \$0.0173 in cost per mile per car.

Attention is again called to the crowded condition of the municipal garage and the recommendation is renewed that a second story be added to the present building, which was constructed in 1917 for the housing of 25 automobiles. At the present time it becomes necessary at night to park 13 of the 44 machines belonging to the garage outside. During the coming year we expect to have 50 cars, which will necessitate the storage of a number of cars over night in the street.

C. N. EMMONS,  
*Superintendent, Municipal Garage.*

To the SUPERINTENDENT, DISTRICT BUILDING.

### REPORT OF THE ENGINEER OF HIGHWAYS

WASHINGTON, D. C., September 11, 1926.

SIR: I have the honor to submit the following report of the operations of the office of the engineer of highways for the fiscal year ended June 30, 1926. The total amount of funds appropriated by Congress and deposited by corporations and others for disbursement by the highway division aggregated \$4,131,098.64, of which \$298,000 was for paving sidewalks and alleys in all parts of the District; \$535,450 for paving new roadways; \$950,000 for repairing old roadway pavements, including asphalt resurfacing; \$297,500 for repair of suburban roads; \$53,788 for construction and repair of bridges and viaducts; \$52,700 for grading streets and avenues; \$15,000 for sidewalks and curbs around Government reservations, buildings, and parks; \$65,000 for paving roadways under the permit system; \$84,900 for elimination of Lamond grade crossing (Van Buren Street subway and bridge under tracks of the Baltimore & Ohio Railroad between Sandy Spring Road and Blair Road NW.); \$1,274,000 for paving and repaving roadways under the gasoline tax, road, and street fund; while \$505,660.64 was spent in repairing pavements disturbed by other branches of the District government and by various corporations and others.

*Summary of work under appropriation for improvement and repairs for year ending June 30, 1926*

Standard asphalt pavement.....	square yards--	77,711
Standard asphalt surface.....	do.....	59,053
Asphalt surface pavements (blanket treatment).....	do.....	61,892
Vitrified block gutter.....	do.....	5,977
Cement concrete roadway pavements.....	do.....	259,238
Old cobble and block removed.....	do.....	10,937
Granite and bluestone set.....	linear feet--	21,466
Cement curb formed and laid.....	do.....	113,024
Grading.....	cubic yards--	288,854
Cement concrete sidewalks (assessment and permit work).....	square yards--	33,801.52
Cement concrete sidewalks (around Government reservations).....	square yards--	3,761.69
Cement concrete alleys (assessment and permit work).....	do.....	46,413.50

The following is the list of tables appended to the report:

- Table A.—Street railways in the District of Columbia, July 1, 1926.  
Tables B and C.—Statement of character and extent of street pavements.  
Table E.—Street improvements.

Table F.—Repairs to asphalt and coal-tar pavements.

Table G.—Work done for street railway companies.

Table H.—Work done by day labor under appropriation for "Repairs to streets, avenues, and alleys."

Table I.—Regular permit work.

Table K.—Assessment work.

Table L.—Replacing and repairing sidewalks and curbs around public reservations.

Table N.—Whole cost work.

Table O.—Repairs to cuts by plumbers and others.

Table P.—Grading streets, alleys and roads.

Of the above tables, B, C, and O are printed herewith. The remaining tables are on file in the record room of the office of the engineer of highways, plan case No. B-1310.

The outstanding feature of the year's construction program was the large roadway paving program that was executed. Under funds provided from general taxes for street improvements 37 streets were paved while under the gasoline tax fund 38 streets were similarly improved. The appropriations for these 75 items aggregated \$838,950.

In addition a program of five street widenings involving M Street from Twenty-ninth to Thirty-fifth, Ninth Street from New York Avenue to Massachusetts Avenue, E Street from Fifth to Thirteenth Streets, Bladensburg Road from H Street to L Street, and Thirteenth Street from E Street to Pennsylvania Avenue was provided for and almost entirely completed, under aggregate appropriations of \$230,400.

Three main grading projects were executed—Sixteenth Street from Alaska Avenue to Kalmia Street, Western Avenue from Massachusetts Avenue to Forty-first Street, and Franklin Street NE., from Rhode Island Avenue to Twentieth Street, with aggregate appropriations of \$95,000. Under appropriations provided from general taxes for resurfacing asphalt roadways, 24 streets were repaved.

Eleven streets were paved under the fund of \$50,000 for permit roadways on deposit by property owners in advance of the half cost of the work.

All the items of street paving and repaving above ennumerated varied in length from one to nine city blocks.

The large area of suburban roadway paved during the year was exceeded by 40 per cent by the area of the streets newly opened, given a temporary surface and added to the area of streets to be maintained hereafter.

The urgent deficiency act of March 3, 1926, provided in advance significant sums for projects approved for the budget for 1927 in order that these projects might be started at the opening of the working season. These included permit roadway funds of \$20,000, street paving from general taxes of \$135,700, and from the gasoline tax funds of \$303,000; the widening of Connecticut Avenue from K Street to Eighteenth Street and of Eleventh Street from Pennsylvania Avenue to New York Avenue, aggregating \$181,000; and a fund of \$150,000 for repairing and resurfacing streets. Most of these were completed and all the remainder contracted for and far advanced at the end of the year. Unit costs for roadway pavements were lower as a rule than for the preceding year.

The continued demand for new sidewalk and alley paving in excess of the funds provided therefor has necessitated even stricter rules

for selection of those to be approved than at any past time. Until this demand is materially reduced or our funds materially increased many items of this class justified by public need must be postponed. Unit costs for sidewalks were slightly higher than for the preceding year.

The number and cost of repairs to cuts made in the streets was in excess of all previous records, the cost rising from \$435,000 for the preceding year to \$505,000. This unit of our organization operates on distinct lines of its own in construction processes and cost keeping; has its separate personnel and equipment and with exceptionally small overhead executes a large field of work at unit costs that have not in recent years led to a known criticism from the many contributors of the funds expended.

Items in the year's work of a type and location that invested them with a community interest was the widening of the roadway of E Street NW., Fifth to Thirteenth, to 55 feet, and the widening of the roadway of M Street NW., Twenty-ninth to Thirty-fifth, to 60 feet.

#### MUNICIPAL ASPHALT PLANT

The total output of the municipal asphalt plant for the year was 211,350 cubic feet of material, consisting of 139,338 cubic feet of old material and 72,012 cubic feet of topping mixture. The plant was operated for 254 days, with an average daily output of 832 cubic feet. In connection with the output of the plant, the crusher was operated for 54 days during the year and 3,135 cubic yards of old material hauled to the plant from various streets was crushed.

Constant attention is given to the maintenance of both the plant and the crusher, repairs being made and parts replaced when necessary, thereby keeping them in the best operating condition possible. This cost is incorporated in the total cost of output shown below.

The following material in amounts and cost average set forth below were purchased for use in manufacturing the output during the year:

Limestone dust, 190 tons.....	\$5.45
Sand, 4,490 cubic yards.....	1.45
Asphaltic cement, 794.39 tons.....	23.43

There were purchased for use in operating the crusher and mixer the following large items and the cost average:

Fuel oil, 45,481 gallons.....	\$0.06
Coal, 222.94 tons.....	5.76
Wood, 100 cords.....	15.835

The cost of operation, including labor and material, are kept from day to day, and the summary of this data for the fiscal year develops the following unit costs for the year's operation:

#### *Operation of crusher*

(Period of operation, 54 working days; output of crusher, 3,135 cubic yards)

Cost of crushed product per cubic yard:

Labor and fuel.....	\$1.40
Maintenance, renewals, and repairs.....	.24
Overhead cost: The original cost was amortized by deducting 20 per cent from same each year during the first five years of its life.	
Total cost.....	1.64

*Operation of plant*

(Period of operation, 254 days; total output, 211,350 cubic feet)

Total manufacturing cost per cubic foot:	
Labor	.764
Fuel oil	1.11
Coal	0.53
Wood	.30
<b>Total cost</b>	<b>9.58</b>
Haul from plant to street, labor	6.97
<b>On street:</b>	
Labor	27.75
Painting joints	.30
Fuel	.37
<b>Total cost</b>	<b>28.42</b>
Maintenance and repairs:	
At plant	.97
On street	.34
<b>Total cost</b>	<b>1.31</b>
Overhead: The original cost was amortized by deducting 20 per cent from same each year during the first five years of its life.	
Supervision: Foremen and overseers	4.62
Total manufacturing cost per cubic foot:	
Plant labor	9.58
Hot haul	6.97
Street work	28.42
Maintenance of plant and tools	1.31
Supervision	4.62
<b>Total cost</b>	<b>50.90</b>
The sand used was bought under contract at 80 cents per cubic yard and hauled from the wharf to the plant at the cost of \$2,930.20 for 4.490 cubic yards, or \$0.65 per cubic yard, a total of \$1.45 per cubic yard. All other expendable material was delivered at the plant site at the cost thereof used herein.	
The cost of a cubic foot of old material from the above was as follows:	
58.62 pounds of old material, at \$1.64 per cubic yard	\$0.04240
33.27 pounds sand, at \$0.80 per cubic yard; hauled, \$0.65 per cubic yard	.02127
3.30 pounds limestone dust, at \$5.45 per ton	.00899
5.01 pounds asphaltic cement, at \$23.43 per ton	.05869
Cost of material	.13135
Manufacturing and placing cost	.50904
<b>Total cost per cubic foot</b>	<b>.64039</b>
Topping mixture:	
94.21 pounds of sand, at \$0.80 per cubic yard; hauled, \$0.65 per cubic yard	.06023
9.58 pounds limestone dust, at \$5.45 per ton	.02610
9.58 pounds asphaltic cement, at \$23.43 per ton	.11222
Cost of material	.19855
Manufacturing and placing cost	.50904
<b>Total cost per cubic foot</b>	<b>.70759</b>

The total cost of minor repairs to sheet asphalt and asphaltic concrete pavements during the year, the same representing the maintenance cost during the year, was \$133,727.29. This cost represented the maintenance of all asphalt and asphaltic concrete streets not under guaranty by contractors, a total yardage of 3,770,073. The cost per square yard per year was therefore about 3.55 cents.

For purposes of record and comparison the like annual costs are here stated for past years: 1908, 3.8 cents; 1909, 2.3 cents; 1910, 2.6 cents; 1911, 2.2 cents; 1912, 2.4 cents; 1913, 2 cents; 1914, 1.9 cents; 1915, 1.9 cents; 1916, 1.8 cents; 1917, 1.5 cents; 1918, 1.7 cents; 1919, 3.07 cents; 1920, 3.38 cents; 1921, 3.75 cents; 1922, 2.69 cents; 1923, 2.22 cents; 1924, 1.89 cents; 1925, 2.62 cents.

During the year there was purchased from the Cranford Co., under contract No. 8839, the following material in bulk at contractor's plant, to be used in connection with minor repairs to asphalt pavements and repairs to cuts:

33,016 cubic feet of topping, at \$0.50 per cubic foot	\$16,508.00
25,186.4 cubic feet binder, at \$0.45 per cubic foot	11,333.88
Total	27,841.88

The material was hauled from the plant and laid in the streets by the District of Columbia minor repair forces. This procedure was following the policy of previous years, as the municipal plant alone could hardly have met the aggregate need of our work and was not subjected to the injurious strain of attempting it.

In connection with these costs of annual repair it should be considered that some of the streets approximate an age of 40 years and that the average age of those we have resurfaced in recent past years exceeds 25 years. The average age of streets resurfaced in 1910 was 25.8 years; in 1911, 24.5 years; in 1912, 25.8 years; in 1913, 26 years; in 1914, 28.5 years; in 1915, 28 years; in 1916, 29.6 years; in 1917, 27 years; in 1918, 26 years; in 1919, 26.7 years; in 1920, 23.6 years; in 1921, 23.2 years; in 1922, 28.7 years; there was no resurfacing done in 1923 and very little in 1924; in 1925, 28 years; in 1926, 28.4 years.

#### STREETS

Repairs to streets, avenues, and alleys, appropriation 1926, were made under the immediate supervision of the superintendent of streets, as follows:

Brick sidewalk relaid	square yards	13,414
Asphalt block paved	do	862
Asphalt block repaved	do	11,704
Vitrified block paved	do	1,417
Vitrified block repaved	do	6,508
Curb reset	linear feet	474
Granite block laid	square yards	3,224
Cement walk relaid	do	10,504
Grading	cubic yards	4,128
Labor		\$131,359.40
Material		\$13,279.04

#### SUBURBAN ROADS

The appropriation for repairs to suburban roads and suburban streets was \$297,500 and for grading streets, avenues, and alleys

\$50,000. Newly opened streets were graded, regulated, and surfaced with cinders or old street material. In this work there was used 7,000 cubic yards of ashes from the refuse division, 18,000 cubic yards of cinders purchased, and 13,000 cubic yards of old material removed from other streets. In the maintenance of existing pavements and road surfaces the following list shows work done and materials used:

Bituminous mixture, made and applied	tons	14,000
Stone used therein	do	13,422
Bituminous patching material therein	gallons	160,000
Cost of bituminous mixture at the plant, labor and materials	per ton	\$4.88
Heavy tar (A) applied to macadam roads	gallons	74,891
Light tar (B) applied to macadam roads	do	53,353
Total area covered	square yards	450,000
Gravel for covering material	tons	2,117
Stone chips for covering material	do	200
Dust laying on cinder and gravel surfaces:		
Light oil used	gallons	90,000
Area oiled, one application	square yards	500,000
Repairs to nature breaks in concrete roadways:		
Heavy tar used	gallons	4,895
Sand used	cubic yards	165
Square yards pavement repaired		568,374
Approximate cost per square yard repaired		\$0.0063
Stone used for repairs	tons	22,232
Newly opened streets added to the area to be maintained	miles	16.29
Streets paved during year in same area	do	11.70

Increase during year in area to be maintained do 4.59

On account of the constant increase in number and weight of vehicles due to expansion of the city and building activities, roads must be more frequently and more thoroughly patched and temporary surfaces put on of a greater thickness than formerly. The unit cost of maintenance of suburban roads has about doubled in the past six years.

At the new trestle at Second and N Streets NW. there is now storage for 75,000 gallons of patching material and 3,000 tons of stone. Using recently acquired machinery, substantial economy has been made in the cost of bituminous patching.

#### BRIDGES

The expenditures from the appropriation for construction and repair of bridges amounted to \$30,972.07.

The principal items of work were:

Pennsylvania Avenue Bridge SE., complete painting	\$7,247.71
Reconstruct timber curbs, Chain Bridge, completed	1,297.20
Reconstruction wooden floor draw span Anacostia Bridge, completed	2,868.76
Calvert Street Bridge, repairs	988.46
Concrete floor, K Street Bridge across Rock Creek, in part	1,142.49

Contract for construction of Van Buren Street subway under the tracks of the Baltimore & Ohio Railroad, at a cost of \$69,697, was executed and work commenced; also for concrete roadways and sidewalks in connection therewith at a cost of \$4,757.

## ENGINEER STABLES

The engineer stables, housing 24 animals, is located on U Street NW., between Sixteenth and Seventeenth Streets. These animals are assigned for use by the repair shop, District of Columbia.

Number of annual employees: One superintendent, two drivers, and two watchmen.

My acknowledgments are due to the employees of this division for the work accomplished by the office during the year.

C. B. HUNT,  
*Engineer of Highways.*

To the ASSISTANT ENGINEER COMMISSIONER.

TABLES B AND C.—*Character and extent of roadway pavements, July 1, 1926*  
SQUARE YARDS

Section	Asphalt	Asphal- tic sur- face	Asphalt block	Asphal- tic con- crete, concrete base	Asphal- tic con- crete, stone base	Cement concrete	Durax block (small granite block)	Granite and rubble
Northwest city-----	1,832,544	11,607	23,990	9,674	6,372	25,448	12,294	76,295
Northeast city-----	427,043	-----	193,962	3,127	-----	13,765	-----	17,601
Southeast city-----	302,949	-----	230,437	8,019	4,082	5,012	-----	25,319
Southwest city-----	291,550	33,860	40,436	13,535	-----	11,148	-----	110,330
Georgetown-----	142,460	3,541	23,076	4,144	905	4,118	19,385	26,951
Northwest suburban-----	421,848	100,656	83,206	25,855	24,501	523,402	-----	-----
Northeast suburban-----	90,255	18,794	6,925	14,354	-----	172,767	-----	-----
Southeast suburban-----	21,203	35,532	-----	-----	3,049	34,972	-----	4,102
Total-----	3,529,852	203,960	602,032	78,708	38,909	790,632	31,679	260,598

Section	Vitrified block	Cobble	Macadam (estimated)	Gutters on asphaltic streets	Gutters on asphaltic concrete streets	Pave- ments main- tained by street railways	Total
Northwest city-----	9,855	5,763	19,054	120,493	1,128	287,110	2,441,627
Northeast city-----	3,882	-----	30,416	33,847	231	69,316	793,190
Southeast city-----	-----	13,122	45,465	21,448	898	48,328	705,079
Southwest city-----	3,138	7,070	10,136	24,927	1,254	56,820	604,204
Georgetown-----	515	10,419	3,000	5,979	498	35,325	280,316
Northwest suburban-----	-----	-----	1,156,754	31,706	4,517	79,771	2,452,216
Northeast suburban-----	-----	-----	311,676	6,591	1,049	25,356	647,767
Southeast suburban-----	-----	-----	38,741	6,385	272	14,781	159,037
Total-----	17,390	36,374	1,615,242	251,376	9,847	616,807	8,083,436

Section	Asphalt	Asphaltic surface	Asphalt block	Asphal- tic con- crete, concrete base	Asphal- tic con- crete stone base	Cement concrete	Durax block (small granite block)
Northwest, city-----	94.14	0.53	1.45	0.51	0.24	1.38	0.30
Northeast, city-----	22.42	-----	8.58	.19	-----	.92	-----
Southeast, city-----	16.09	-----	11.53	.43	.17	.29	-----
Southwest, city-----	15.81	1.75	2.37	.68	-----	.36	-----
Georgetown-----	8.74	.13	1.51	.49	.06	.23	.83
Northwest, suburban-----	23.41	6.73	4.49	1.31	1.48	28.12	-----
Northeast, suburban-----	5.64	1.11	.63	.97	-----	9.04	-----
Southeast, suburban-----	1.83	2.92	-----	-----	.21	1.75	-----
Total-----	188.08	13.17	30.56	4.58	2.16	42.09	1.13

TABLES B AND C.—*Character and extent of roadway pavements, etc.*—Continued  
MILEAGE—Continued

Section	Granite and rubble	Vitrified block	Cobble	Macadam (estimated)	Gravel and unimproved (estimated)	Total
Northwest, city	4.56	0.50	0.08	0.80	2.23	106.72
Northeast, city	.87	.24	—	1.60	3.25	38.07
Southeast, city	1.44	—	.66	2.15	5.14	37.90
Southwest, city	5.70	.27	.30	.49	2.62	30.35
Georgetown	1.99	.03	.48	.06	.53	15.08
Northwest, suburban	—	—	—	74.77	56.19	196.50
Northeast, suburban	—	—	—	25.39	53.68	96.46
Southeast, suburban	.21	—	—	3.09	39.16	49.17
Total	14.77	1.04	1.52	108.35	162.80	570.25

TABLE O.—*Number of square yards and cost of repairs to cuts in various streets, sidewalks, and alleys during the fiscal year ending June 30, 1926, chargeable to plumbers, public-service corporations, individual depositors, and appropriations of the District and Federal Governments*

Cost of repairs charged to—	Flat rate	Whole cost	Total
Plumbers	\$29,186.22	—	\$29,186.22
Public-service corporations	117,209.40	\$165,410.36	282,619.76
Individual depositors	28,130.42	—	28,130.42
Various appropriations of the District and Federal Governments	70,319.28	95,404.96	165,724.24
Total	244,845.32	260,815.32	505,660.64

Square yards repaired	Flat rate	Whole cost
Sheet asphalt	\$12,344.00	\$17,110.22
Vitrified block	1,608.43	4,212.60
Asphalt block	2,601.91	4,737.17
Granite block	1,299.26	5,383.76
Cobble	209.79	409.52
Cement sidewalks	48,290.47	—
Macadam	2,443.70	297.13
Concrete roadways	7,464.62	4,682.53
Scoria	59.72	10.56
Durax	56.68	171.55
Brick sidewalk	7,227.22	23,153.65
Total	83,605.80	60,168.60

#### REPORT OF THE INSPECTOR OF ASPHALTS AND CEMENTS

WASHINGTON, D. C., August 23, 1926.

SIR: I have the honor to submit the following report of operations of this division during the fiscal year ended June 30, 1926. Total number of samples tested, 22,257; records of each on file in this office.

#### ASPHALT PAVEMENTS

There were laid by Corson & Grutman Co. approximately 49,905 square yards of asphalt concrete sand topping mixture (Bessonite); this in resurfacing old macadam and granite block roadways.

This is the fifth year this type of surface has been used by the District, and has thus far given satisfactory service.

## CONCRETE ROADWAYS

There were also laid by contractors 259,318 square yards of concrete roadways; the aggregate was plant proportioned in batches and mixed on site of work. Results of compression tests show a maximum of 3,048 and a minimum of 2,412, with a general average of 2,728 pounds per square inch.

## PORTLAND CEMENT

Number of samples tested, 19,501, representing 199,817 barrels with 1,264 barrels rejected.

Tables showing in detail materials tested, results thereof, and by whom submitted are on file in this office.

Very respectfully,

V. CLEAVER,  
*Inspector of Asphalts and Cements.*

To the ENGINEER OF HIGHWAYS.

## REPORT OF THE SUPERINTENDENT OF TREES AND PARKINGS

WASHINGTON, D. C., August 16, 1926.

SIR: I have the honor to submit my annual report of the operations of the trees and parkings division for the fiscal year ended June 30, 1926.

## TREES PLANTED

There were 1,754 young trees planted in their permanent positions on the streets during the fiscal year. An extra effort made during the year to extend the tree system along the streets in the suburbs and hitherto unplanted localities resulted in 1,365 being planted along many improved thoroughfares. Three hundred and eighty-nine trees were planted for the purpose of filling vacancies in the existing rows. Of the total number planted, 1,753 were set at the curb line, and one in the parking between the inner edge of the sidewalk and the building line. The work of preparing the tree spaces for planting is vigorously prosecuted through such times of the year as it is found practicable to so distribute the force. Ordinarily, no holes are dug between May 1 and August 1, the men then being employed in cultivating young trees, mowing weeds, trimming, and spraying trees.

The cost of planting 1,751 trees was paid from the appropriation for the trees and parking division and 3 were paid from whole cost deposits. Two hundred and thirty-three tree holes were prepared for planting by a real estate promoter in his subdivision without any cost to the District of Columbia. This department furnished the trees, planted, and boxed them, the cost being paid from its appropriation.

The present nurseries have not produced a sufficient number of trees of the proper size to keep pace with the growth of the city and its street improvements in the past few years. Last fall it was

necessary to purchase 300 red oak trees from a private nursery for street planting.

The sum of \$13,269.82 was expended for labor and material for tree planting along the streets during the fiscal year.

#### TREES REMOVED

Many fine trees are necessarily sacrificed for important street improvements throughout the city. Under this head may be classed the widening of streets, the mutilation of roots in setting curbs and laying sidewalks, together with laying sewer and water pipes. Hundreds of trees die annually of injuries over which this department has no control, but for which it must assume responsibility. Unfavorable city conditions, coupled with natural hardships, make the life of city trees extremely uncertain; and it sometimes seems futile to plant them because their safety can not be assured. The chief source of injury to shade trees is generally the poor condition of the soil, which is continually being impoverished by the growing tree, and which we are unable to fertilize because of cement sidewalks.

A total of 2,197 trees were removed during the year for various reasons. Of these, 355 were decayed and dangerous, 8 were to relieve excessive shade, 2 because they interfered with parking improvements, 382 for street improvements, 57 for driveways, 35 for alley improvements, 22 destroyed by automobiles, 236 by storms, 38 for interfering with vehicular traffic, 3 for interfering with entrances to buildings, 5 because of close proximity to buildings, 2 for interfering with building operations, 3 for interfering with street lamps, 1 damaged by steam shovel, 16 for interfering with development of street trees, and 5 in the entrance to a United States Government Park. It was ascertained that 62 trees were killed by illuminating gas, 33 by salt water, 90 by abnormal moisture, 51 by being filled around, 23 by being girdled, 159 by drought, 6 by insects, 5 by root mutilation, 9 by oil, and the deaths of 589 were unexplained. Of the total number removed 1,926 stood at the curb line, 142 in the parking, 87 in the sidewalk, 33 in alleys, and 9 in roadways.

The cost of removing 1,705 trees was paid from the appropriation for the trees and parking division, 400 from the appropriation for other departments, and 41 from whole cost deposits. Permission to remove 51 trees was granted private individuals. The cost of removing the trees paid from the trees and parking appropriation amounted to a total of \$9,010.03.

#### TREES SPRAYED

The trees of this city suffer each year from the attacks of the elm-leaf beetle, the tussock moth, and the fall webworm. The spraying of the city trees with arsenate of lead has become an annual necessity in order to preserve their foliage. This department sprayed 21,925 trees during the year for the extermination of the leaf-eating insects.

The sum of \$1,301.04 was spent for labor and material to spray the trees on public space.

## NURSERIES

The Fort Dupont and Poplar Point nurseries are well stocked with small trees of the varieties considered best for street planting. It has been impossible for the nurseries to furnish each year a sufficient number of young trees of proper size to plant in their permanent positions on the streets. We have, therefore, been compelled to purchase some trees for street planting each year for the past four years.

This department transplanted 513 red oak trees to the nursery rows at Fort Dupont nursery, and 400 white oak, 240 willow oak, 392 gingko, 982 Norway maple, 129 silver maple, 369 sycamore, and 455 gum trees to the nursery rows at the Poplar Point nursery.

The sum of \$20,296.82 was expended for nursery work. This includes the amount expended in the preparation of new ground recently transferred to this department.

## TRIMMING

No systematic trimming was undertaken during the year, but considerable attention was given by a comparatively small force of men to many individual requests for trimming trees possessing objectionable or dangerous limbs, and low limbs on young trees that interfered with pedestrians and vehicular traffic, etc. A total of 9,722 trees were trimmed during the year at a total cost of \$9,123.25.

In addition to the work done on the individual requests mentioned above, the same force attended to the miscellaneous casualties to trees and tree boxes reported by the police department. This casualty work was performed at a total cost of \$1,420.96.

The sum of \$56.56 was expended in removing broken limbs, trees, etc., from the streets caused by storms.

## TREE SURGERY

The cavities in 6 elm, 2 sycamore, 2 Norway maple, 4 sugar maple, and 2 linden trees standing at the curb line were treated and filled with cement. The sum of \$204.64 was expended for labor on this work.

CULTIVATING YOUNG TREES, MOWING PARKINGS, AND REMOVING  
TREE BOXES

It is deemed necessary to rid the city of as many weeds as possible. An overgrowth of weeds on the parking and tree spaces spoils the appearances of a street. Many complaints are received during the year before the city can be entirely gone over, especially in the outlying districts. The sum of \$2,208.46 was expended on this work during the fiscal year. The sum of \$135.98 was expended for the care of small reservations under the control of the Commissioners of the District of Columbia.

A total of 10,885 young trees were cultivated during the year at a total cost of \$1,990.24.

A total of 673 wooden tree boxes and iron tree guards were removed during the year from trees which no longer required their protection.

The cost of this work was \$319.83. The sum of \$123.06 was expended in miscellaneous repairs to boxes.

#### REGULATION OF TERRACES AND RETAINING WALLS

This office issued 1,465 permits affecting the grades of terraces in connection with building operations in the residential districts during the year. We have had very little trouble with builders relative to maintaining uniform parking grades. The height of 553 retaining walls to be constructed on public space were passed on by this office.

#### SUMMARY

Curb trees on the streets at the close of the fiscal year 1925-----	104,869
Net decrease in curb trees during fiscal year 1926-----	173
Curb trees on the streets at close of fiscal year 1926-----	104,696

Very respectfully,

C. LANHAM,  
*Superintendent Trees and Parking.*

ASSISTANT TO THE ENGINEER COMMISSIONER.

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#### REPORT OF THE SURVEYOR

WASHINGTON, D. C. September 1, 1926.

SIR: I herewith submit report of the operations of the office of the surveyor of the District of Columbia for the year ended June 30, 1926.

As is usually outlined in my report, the work of this office is divided, more or less, into three classes, which may be classified as follows:

1. Work performed for private parties for which fees are charged, as prescribed by order of the commissioners; and where not covered by schedule of fees, an estimate is made covering the actual cost of the work performed.

2. Work for the various departments of the District and Federal Governments for which no fees are charged.

3. Work done in connection with condemnation cases for the opening of the streets and alleys, parks, school and playground sites, etc.

The work performed by this office, while not showing an increase over the previous year, has been on an average about equal to the amount performed during the previous year.

Following is a statement showing in detail the work performed under the three classes:

1. Work for private parties.—Survey work: Number of surveys made, 2,722, number of individual lots staked on orders for surveys, 4,846; certificates (or plats) of survey issued, 2,722; surveys to locate foundations of buildings being erected, 2,522; number of buildings located with relation to property lines, 1,494; large tracts surveyed, subdivided, and recorded, 35; surveys made of unsubdivided tracts, 300.

Subdivisions: Subdivision plats prepared (in duplicate), 675; subdivisions recorded, 562; total number of lots in subdivisions recorded, 3,891.

Plats issued in connection with permits: Plats made to accompany applications for building permits (commonly called "building plats"), 5,897; plats made under regulations covering zoning law, for the erection of garages, motors, etc., 500.

Miscellaneous plats: Plats of all kinds made up on orders of private parties, 10,129.

Estimates issued and fees collected: Estimates of cost (issued in triplicate), 12,796; total of fees paid to collector of taxes, for work done by surveyor's office, \$55,179.30.

2. Work for the District of Columbia and Federal Governments: Number of surveys made, 174; plats recorded (condemnations, dedications, etc.), 106; reports to building inspector concerning foundation walls in course of erection, 2,522; assessment and taxation plats recorded, 1,448.

3. Condemnation cases: Cases pending in court, 68; cases confirmed by court, 19; cases ordered by commissioners, but not yet filed, 3; total amount awarded as damages in condemnation cases, \$132,-441.56; total amount assessed as benefits in condemnation cases, \$115,-442.57.

4. Summary of work for District of Columbia: Total number of surveys made for the District of Columbia and private parties, 5,753; total of plats, public and private, including plats drawn in books, 15,790.

#### SURVEYS TO MARK ON THE GROUND THE PERMANENT SYSTEM OF HIGHWAYS

For the purpose of making surveys to mark upon the ground the plan of the permanent system of highways an appropriation of \$2,000 has for several years been made. This is used as a continuing appropriation by this office for this purpose.

Many surveys have been made during the past year and monuments planted to mark street corners in accordance with the street plan, and this appropriation is considered valuable in order to enable this office to continue this important work.

#### REVISION OF THE HIGHWAY PLAN

An appropriation of \$1,500 is made annually for the purpose of making the necessary computations and drawing plans in connection with changes in the highway plan.

Much activity has been noted in this line of work due to the creation of the National Capital Park and Planning Commission.

This office is called upon in this connection to prepare studies and finished maps in connection with proposed changes in the highway plan, which are submitted to the commissioners and the National Capital Park and Planning Commission for approval.

This small appropriation is an important one and should be made annually for this work.

#### CONDEMNATIONS

This office is charged with the performance of all preliminary work in connection with condemnation cases to be filed in court.

This work, which is necessary before condemnation cases are filed in court, calls for expert engineering field work, accurate computations of lines and areas of land to be taken, the preparation of descriptions of the land to be incorporated in the condemnation petition, and expert testimony of engineers in court.

During the past year there were before the courts 68 condemnation cases. Of this number, 43 were miscellaneous cases for the acquisition of streets, parks, etc., and 25 for the acquisition of land for public alleys.

Of the total number of cases in court 19 were confirmed, 7 were dismissed, and 42 are still pending.

In addition to these cases three have been ordered by the commissioners but not yet filed.

The damages awarded by the juries in the cases confirmed amounted to \$123,155.67 for the miscellaneous cases and \$9,285.89 for the alley cases.

During the past year the condemnation of land for streets in the Barry farm subdivision was entirely completed and recorded in this office, thus completing the largest condemnation case ever undertaken in the District.

#### PARKS

A small appropriation was made the past year, amounting to \$5,000, for the purpose of acquiring small park areas at the intersections of streets.

With this small appropriation it is impossible to file more than one case, and frequently the cost of the land to be taken is greater than the amount of the appropriation, and the case in part at least fails.

This appropriation is manifestly too small for this purpose. Property values in the District are increasing enormously, and it is difficult to institute a proceeding for the acquisition of land for small park areas which will not absorb a much greater amount than the amount appropriated.

It is hoped that this appropriation will hereafter be increased in order that more small park sites at street intersections, so desirable in the development of the city, may be acquired.

During the past year condemnation was instituted for small park areas under this appropriation as follows:

Square 3714, at New Hampshire Avenue, First Street, Oneida Street, and Chillum Place NE.

Square 4235, at Twenty-second Street, Eastern Avenue, and Varnum Street NE.

Square 5514, at Massachusetts Avenue, Texas Avenue, and O Street SE.

Square 1490, at Forty-eighth Street, Western Avenue, and Ellicott Street NW.

Square 4354, at South Dakota Avenue, Thirty-first and Douglas Streets NE.

These small park sites were all included in one condemnation case which was filed April 5, 1926, and has not yet been completed. The appropriation for the past year, however, will be obligated to pay for these sites and the court costs of the proceedings.

With this report is submitted a table showing in detail the condemnation cases pending in court, the cases filed, and the cases confirmed during the past fiscal year, giving the amount awarded as damages and the amount assessed as benefits in each case.

#### CLOSING OLD ROADS

The law recently passed by Congress providing for the closing of streets, roads, or highways in the District of Columbia rendered useless and unnecessary by reason of the opening of streets in accordance with the highway plan (Public Act No. 349, approved January 30, 1925) has been used to advantage on many occasions by property owners in making a more advantageous development of tracts of land unnecessarily cut up or divided by the passage through the property of these useless old roads or streets.

The following roads or streets have been closed during the past year under this law:

Belt Road between Forty-first and Jenifer Streets NW.

Belt Road at Forty-first and Huntington Streets NW.

Pierce Mill Road between Wisconsin Avenue and Reno Road NW.

Old Piney Branch Road between Rittenhouse and Sheridan Streets NW.

Colfax Street between L and M Streets NE.

Adams Mill Road between Summit Place and Quarry Road NW.  
Queens Chapel Road between Franklin and Hamlin Streets NE.

This law is considered particularly beneficial, as in many cases it provides the means for carrying out an orderly and comprehensive plan of streets. It enables property owners in the development of their property to provide streets in accordance with the highway plan, at the same time eliminating old streets or roads created without relation to any orderly plan long before the highway plan was adopted. Such a law, however, necessarily had to be cautiously made, and every safeguard against depriving any owners of their property rights was incorporated in the bill.

#### STREET EXTENSIONS

Following is a list of streets acquired by condemnation or dedication which have been placed on the record books of this office during the past fiscal year:

Eames Place between Sixteenth and Seventeenth Streets NE.

Thirty-ninth Street between Benton and Calvert Streets NW.

Benton Street east of Thirty-ninth Street NW.

Calvert Street east of Thirty-ninth Street NW.

Third Street at Decatur Street NW.

Decatur Street west of New Hampshire Avenue.

Luzon Avenue south of Underwood Street NW.

Butterworth Place (Murdock Mill Road) west of Forty-fourth Street NW.

Alabama Avenue west of Eighth Street SE.

H Street between Twentieth and Twenty-second Streets NE.

Upshur Street between Fourteenth Street and Arkansas Avenue NW.

Quintana Place between Seventh Street and Seventh Place NW.

- Thirty-second Street between Davenport and Ellicott Streets NW.  
Randolph Street west of Eastern Avenue.  
Thirtieth Place between Ellicott and Garrison Streets NW.  
Nicholson Street west of Piney Branch Road NW.  
Woodley Road, widened between Klinge Road and Thirty-third Place NW.  
Garfield Street, widened between New Mexico Avenue and Forty-third Street NW.  
South Dakota Avenue southeast of Channing Street NE.  
Widening Cathedral Avenue and Twenty-ninth Street.  
Thirty-seventh Street at Upton Street.  
Van Ness Street at Reno Road.  
Thirty-sixth Street between Albemarle and Brandywine Streets NW.  
Summit Place between T Street and Todd Place NE.  
Eastern Avenue northwesterly from Bladensburg Road.  
Otis and Perry Streets south of Eastern Avenue.  
Tilden Street west of Connecticut Avenue NW.  
Upton Street east of Wisconsin Avenue.  
Van Ness Street between Pierce Mill Road and Thirty-seventh Street.  
Thirty-eighth Street north of Upton Street NW.  
Reno Road north of Van Ness Street NW.  
Ninth Street between Madison and Quackenbos Streets NW. and between Tuckerman and Underwood Streets NW.  
Tuckerman Street and Underwood Street east of Georgia Avenue NW.  
Fourth Street from a point south of Underwood Street to Whittier Street NW.  
Piney Branch Road, Twelfth and Thirteenth Streets, between Rittenhouse and Sheridan Streets NW.  
Rittenhouse Street between Georgia Avenue and Thirteenth Street NW.  
Sheridan Street between Twelfth and Thirteenth Streets NW.  
Lenore Terrace east of Linean Avenue NW.  
Thirty-first Street between Ellicott and Garrison Streets NW.  
Ellicott Street immediately easterly and westerly of Thirtieth Street NW.  
Forty-fifth Street between Murdock Mill Road and River Road NW.  
Forty-fourth Street between Murdock Mill Road and River Road NW.  
Forty-sixth Street between Murdock Mill Road and Davenport Street NW.  
Brandywine Street from Forty-fourth Street to a point immediately west of Forty-sixth Street NW.  
Chesapeake Street between Forty-fourth and Forty-sixth Streets NW.  
Davenport Street between Forty-fourth and Forty-sixth Streets NE.  
Ellicott Street west of River Road NW.

River Road, widened between Forty-fourth and Fessenden Streets NW.

Quarry Road, widened west of Adams Mill Road NW.

Barry farm subdivision: Streets acquired by condemnation.

During the past year a bill was enacted into law providing for an appropriation to acquire streets in accordance with the highway plan.

The purpose of the act is to enable the juries in condemnation cases to award damages in excess of benefits for the extension and widening of streets in accordance with the highway plan, the difference to be paid out of the appropriation as authorized in the act.

This law will enable the commissioners to extend many important streets as laid down on the highway plan, and is believed to be important and beneficial legislation, as it was becoming more and more difficult under the old law to prosecute to a conclusion condemnation cases for the extension and widening of streets on account of the enormous damages which the juries necessarily have to find to pay for the land, and there was no provision for the payment of these damages and court costs except by assessments for benefits on the property in the immediate neighborhood.

As the benefits derived for the opening and extension of important streets are in the public interests, and not restricted to the particular area involved, it is believed that the law is an equitable and beneficial one to the general public.

It is desired to again acknowledge the efficient and competent service rendered by the employees of this office during the past year, the work having been handled in a prompt and satisfactory manner.

M. C. HAZEN,  
*Surveyor.*

ASSISTANT ENGINEER COMMISSIONER.

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#### REPORT OF THE INSPECTOR OF BUILDINGS

WASHINGTON, D. C., August 13, 1926.

SIR: I submit herewith the annual report of the building inspection division for the fiscal year 1926.

The report includes no record of building operations conducted by the Federal Government or by the District of Columbia government.

Washington in building construction has led all the cities in the United States from Baltimore south and east of St. Louis, including both of these cities, and has remained consistently in the eighth place among all the cities of the United States for the past year in the monthly reports of building activities.

The following statistics will prove the vast amount of business conducted through this office during the past fiscal year and is a splendid testimony to the earnestness and loyalty of all the employees of this division:

*Statement of permits issued from July 1, 1925, to June 30, 1926*

	Number	Value		Number	Value
<b>Brick:</b>			<b>Concrete:</b>		
Dwellings.....	3,105	\$20,169,450	Dwellings.....	57	\$553,700
Repairs.....	1,719	3,424,495	Repairs.....	40	102,590
Apartments.....	169	9,107,000	Garages.....	114	273,865
Garages.....	392	453,475	Apartments.....	4	1,215,000
Stores.....	89	1,657,125	Stores.....	5	15,500
Office buildings.....	17	1,247,300	Offices.....	2	251,500
Gas stations.....	20	480,000	Warehouses.....	8	531,500
Churches.....	2	158,000	Public garage.....	1	115,000
Hotels.....	2	450,000	Mill.....	1	10,000
Warehouses.....	14	435,500	Greenhouses.....	2	3,000
Power plants.....	3	48,500	Dairy.....	1	1,500
Hospital.....	1	186,600	<b>Title:</b>		
Institutional homes.....	2	317,000	Dwellings.....	37	383,900
Greenhouse.....	1	15,000	Repairs.....	18	11,995
Public garages.....	15	439,500	Garages.....	39	36,385
Laundries.....	2	105,000	Gas station.....	1	3,000
Library.....	1	109,000	Stores.....	2	7,000
Clubs.....	3	604,000	<b>Frame:</b>		
Shed.....	1	600	Dwellings.....	900	4,825,570
Ice plants.....	3	40,000	Repairs.....	775	284,895
Print shop.....	1	150,000	Garages.....	377	116,505
Theater.....	1	225,000	Sheds.....	74	20,995
Mortuary.....	1	35,000	Churches.....	3	53,000
<b>Stone:</b>			<b>Metal:</b>		
Dwellings.....	36	688,800	Garages.....	1,769	296,545
Repairs.....	8	10,550	Sheds.....	89	10,175
Garages.....	3	3,500	Repairs.....	2	5,000
Churches.....	3	260,000	<b>Machinery:</b>		
Institutional home.....	1	140,000	Motors.....	509	643,905
Warehouse.....	1	12,000	Elevators.....	125	698,770
Restaurant.....	1	75,000	Boilers.....	12	74,700
Store.....	1	7,000	Total.....	10,586	63,599,280
Hotel.....	1	2,000,000			

*Distribution of improvements in sections*

	Buildings	Repairs
Northeast.....	\$10,483,475	\$966,645
Southeast.....	2,471,090	328,065
Northwest.....	44,545,400	4,121,080
Southwest.....	512,400	171,125
	58,012,365	5,586,915
	5,586,915	-----
	63,599,280	-----

*Comparative statement for years 1925 and 1926*

	Repairs, etc.	New buildings	Dwell- ings	Apart- ments	Business buildings
1926.....	5,520	5,066	4,135	173	758
1925.....	5,584	5,319	4,129	120	1,070
	-64	-253	+6	+53	-312

*Estimated number of buildings in the District of Columbia<sup>1</sup>*

	Brick	Stone	Concrete	Tile	Frame
1926, erected.....	3,842	71	170	74	903
1926, razed.....	132				177
Net total for year.....	3,710	71	170	74	726
Add total as of year 1925.....	80,052	15	499	493	30,404
Grand total.....	83,762	86	669	567	31,130

<sup>1</sup> This estimate is necessarily broad, data for an accurate estimate not being available.

*Comparative statement for past six years*

Year	Repairs, etc.	New build- ings	Dwell- ings	Apart- ments	Business build- ings	Number of permits	Value
1921-----	5,323	1,605	772	14	819	8,310	\$19,025,291
1922-----	5,323	3,510	2,397	60	1,053	10,301	36,223,089
1923-----	5,938	3,478	2,460	81	937	12,191	57,690,038
1924-----	5,356	3,012	2,079	81	852	11,446	39,403,207
1925-----	5,584	5,319	4,129	120	1,070	11,993	62,832,980
1926-----	5,520	5,066	4,135	173	758	11,574	63,599,280

It is interesting to note the increased value of building operations in comparison with last year, which was considered a banner year. Last year's figure is shown to be \$62,862,980; this year's, \$63,599,280, an increase of \$736,300.

There were issued during the fiscal year 1926, 11,574 permits as compared with 11,993 issued last year, a decrease of 419.

## HOUSING ACCOMMODATIONS

There were issued during this fiscal year permits for 3,762 one-family houses, an increase of 367 over the figure for last year, and 92 two-family houses, an increase of 37. The permits for the 173 apartments showed that these apartments were to be built to accommodate 4,539 (increase of 1,561) families; the 3 hotels to accommodate 480 families.

## SIGNS

During the past fiscal year permits for 2,198 signs were issued (increase of 392), 1,704 of which were 50 square feet or under; 485, 51 to 100 square feet; and 9 exceeded the maximum limit of 100 square feet as allowed under the zoning regulations, the permit for these 9 signs requiring the approval of the commissioners before the issuance of permit. The materials of which these signs were made consisted of wood, metal, canvas, and many combinations of wood and metal, as well as being painted on the wall. There were 1,932 signs, the material of which was wood, metal, or paint. There were 150 canvas signs and 18 roof signs. Among the 98 signs having miscellaneous material the great majority consisted of glass and other material (barber poles).

## ELEVATOR BUREAU

A very busy year was had by the elevator inspectional section, there being made 1,939 triyearly inspections by three inspectors, our other inspector being intrusted with the follow up of repairs (ordered by the other three), complaints, and the approval of 129 new installations. As the number of elevators installed have increased, it is only logical that licenses for elevator operators should increase, there having been issued 821 licenses to operators of elevators.

Checks totaling \$2,295 were received, paying for 1,836 inspections, the cost being \$1.25 per elevator.

Of particular note is the inspection of elevators in Government buildings, there being 21 Government buildings containing 75 elevators, and the installation of a new elevator in the Washington Monument at a cost in excess of \$20,000, this being installed upon the recommendation of this division.

Seven accidents occurred on elevators the past year, of which five occurred on passenger elevators. Three of these accidents proved fatal. Examination and investigation showed that none of the accidents were due to faulty mechanism.

It is gratifying to note the rapid progress made by this section and the increasing confidence placed in it by the general public. Condemnations and orders for repairs are rarely questioned and in no case have the orders issued been required to be modified.

#### OCCUPANCY PERMITS

There were issued during the past fiscal year 2,602 occupancy permits, a decrease of 407 from the figure of last year. Of these 2,602 permits, 2,355 certificates were for conforming uses and 247 for nonconforming uses.

#### FIRE ESCAPES, FIRE EQUIPMENT, AND ENTERTAINMENTS

During the past fiscal year there were made 159 inspections of theaters, dance halls, and hotels, these inspections paying fees in the sum of \$630. Inspections for one night entertainments were 31, \$31 being paid in fees.

Plans for new buildings relative to fire equipment were 188, \$1,880 being charged in fees. Plans checked as to layout of electrical fixtures were 250, no fee being charged for this service.

There were 2,080 apartment houses inspected as to the necessity of providing fire equipment. There were prepared and served 176 commissioners' orders requiring the installation of certain fire equipment, and approximately 500 letters mailed dealing with this phase. The total number of inspections and fees for this bureau being 2,270 and \$2,541, respectively.

#### COMPLAINT DEPARTMENT

It is difficult to appreciate the vast amount of work of this department and its service rendered to the public.

There were approximately 4,500 complaints received through the mails and by way of telephone, the majority of which pertained to dilapidated sheds and falling plaster. In addition approximately 2,100 complaints were received from other departments for investigation and prosecution. Approximately 4,000 letters and notices were prepared and served in person upon the owner or agent to correct the condition complained of and any other danger found upon inspection. Of this number, practically all notices were complied with, although in some cases second and third notices were served before compliance was effected. In very few instances was reference to the corporation counsel necessary.

**FEES COLLECTED AND EXPENDITURES**

The building inspection division caused to be paid into the United States Treasury through the collector of taxes during the fiscal year of 1926 the sum of \$85,520 for permits, licenses, etc.

The amount appropriated for salaries was \$78,000. Contingent and miscellaneous expense allotment totaled \$2,242.75, of which \$560 was allowed for street car tokens to be used by the field inspectors who are not provided with automobile allowance. The allowance for automobiles and motorcycles allowed our nine inspectors totaled \$2,145. Postage allotment of \$120 was increased later to \$200.

From the foregoing figures it can be seen that this department is more than self-supporting, an excess of \$2,932.25 remaining to its credit over all appropriations and allotments made.

**PLAN EXAMINERS**

Among the larger building projects which have been examined by the division and passed for permit were nine 8-story apartments, eleven 5-story apartments, two 8-story hotels and one of 11 stories, one theatre combined with apartments, one 8-story and one 9-story office building, one 8-story store, and a 7-story club house, besides numerous semifireproof apartments of smaller sizes.

There are now on file, awaiting approval, plans for the National Press Club, an 11-story office building containing a theatre with a proposed seating capacity of 3,500; the Washington Central Trust Co. office building of 10 stories, the Capitol Garage of 10 stories, to be used for day parking; an addition to the Corcoran Gallery of Art estimated at \$1,000,000; and an addition to the generating station at Bennings for the Potomac Electric Power Co.

**THE SPECIAL INSPECTOR**

During the year the operation of that portion of the regulations providing for special inspectors on buildings involving more than 100 tons of structural steel or 20,000 square feet of concrete floor area, or buildings for public assemblage, has been most successfully enforced. There was considerable opposition at first, feeling that it was an unnecessary expense on the owner, but the actual application has demonstrated that the time saved in the prosecution of the work and the guaranty to the owner of more constant supervision and inspection has shown it to be a vital adjunct to the builders organization.

A number of firms specializing in the inspection of engineering projects are now considering entering the field for the purpose of furnishing these inspectors. Every effort is being made to acquaint the inspectors appointed with the requirements of the building code, and it is probable that the owners will voluntarily appoint inspectors on jobs of less magnitude without a regulation in view of the many benefits derived.

During the past year 31 individuals have qualified for this work and they had under their supervision the construction of 67 buildings. Their work has relieved this office of a vast amount of detail inspection.

## ADVISORY COMMITTEE ON REVISION OF BUILDING CODE

The advisory committee for revision of the building code, of which the inspector of buildings is chairman, began its meetings in February, 1926, and at its various meetings have considered many necessary modifications to the building code.

This committee is composed of several prominent civil engineers and architects who gave their time gratis for the purpose of obtaining the best possible code, and they are to be congratulated upon their prompt and faithful attendance at the meetings and for their interest in the difficult task of revising and interpreting the building code.

## LICENSING OF BUILDERS

The question of licensing of builders within the District of Columbia to determine their qualifications for the performance of building operation has been referred to several times in previous annual reports, and it is believed advisable to renew this recommendation and the adoption of a plan to provide for the licensing of builders without unnecessary restrictions as to examination, etc.

It is recommended that the building code advisory board, now in existence, be instructed to make a complete study of this subject and to make a recommendation for reference to Congress so that effective legislation can be obtained.

Respectfully submitted.

JOHN W. OEHMANN,  
*Inspector of Buildings.*

To the ASSISTANT ENGINEER COMMISSIONER.

## REPORT OF INSPECTOR OF STEAM BOILERS

WASHINGTON, D. C., August 14, 1926.

Sir: I have the honor to submit the following report for the fiscal year ending June 30, 1926, together with fees received and expenses incurred:

Boilers inspected	449
Boilers inspected, District of Columbia (no fee)	35
Cases of deposit	40
Cases of defective setting	15
Cases of defective tubes	40
Cases of defective steam gauge	12
Cases of pressure reduced	2
Cases of boilers condemned	5
Total amount received	\$2,245.00
Total amount expended	380.00
Compensation for inspector	1,865.00

Respectfully submitted.

E. F. VERMILLIAN,  
*Inspector of Steam Boilers.*

To the INSPECTOR OF BUILDINGS.

## REPORT OF PERMIT CLERK, ENGINEER DEPARTMENT

WASHINGTON, D. C., August 3, 1926.

SIR: Report of the operations of the permit clerk's office, giving the number of permits issued during the fiscal year ended June 30, 1926, is hereby submitted:

Water connections -----	4,679
Repairs -----	961
Specials (no fees) -----	123
Sewer connections -----	4,579
Repairs -----	666
Specials (no fees) -----	723
Gas connections -----	4,821
Repairs -----	337
Mains, lay and repair -----	507
Specials (no fees) -----	16
Electric connections and underground construction -----	5,311
Repairs -----	11
Conduits -----	1,035
Manholes, build and connect with sewers -----	318
Specials (no fees) -----	66
Air pipe lines, lay -----	7
Fences and hedges to inclose parkings -----	538
Guardstones, place in alleys -----	7
Pave parkings -----	108
Poles, erect, replace, and remove -----	1,373
Tanks, install fuel oil for heating -----	349
Walls, erect retaining on parkings -----	553
Miscellaneous -----	36
 Total -----	27,124
Permits for work of various kinds of work in public space -----	8,774
 Total -----	35,898

Fees of \$1 were paid for 26,196 permits; permits for which no fees were charged, 9,702.

For the next preceding years the paid permits were \$13,586, \$16,692, \$17,214, \$23,304, and for no-fee permits, 5,120, 6,492, 6,794, 7,782.

Record cards were made of all files referred to this office, permits issued, or reports made and files returned to the divisions having supervision of inspections of work for which permits were issued.

All applications were filed according to location and report of excavations in public were made for necessary repairs.

H. M. WOODWARD,  
*Permit Clerk.*

To the INSPECTOR OF BUILDINGS.

## REPORT OF THE INSPECTOR OF PLUMBING

WASHINGTON, D. C., August 13, 1926.

SIR: I am handing you herewith the forty-fourth annual report of the plumbing inspection division of the engineering department.

During the last year there were 23,337 inspections on plumbing work in new buildings, 6,581 inspections of plumbing work in old buildings, and 28,353 inspections in connection with complaints made on condition of plumbing, guttering, and spouting in old build-

ings, making a total of 58,271 plumbing inspections made by this office. The average number of inspections made by the field force was a little less than 13 per day, and the largest number of inspections in any one day was 28.

#### COMPLAINTS

Of the 28,353 complaint inspections made during the year (practically one-half of the entire field work), about one-half were complaints of defective plumbing in old houses, for which correction noticees were served, and about one-half related to sheet-metal gutters and rain leaders and leaking roofs. Practically all of the gutter and downspout complaints, all of the leaky-roof complaints, and about one-half of the defective-plumbing complaints originated from other departments and were referred to this office for prosecution.

#### MUNICIPAL AND PUBLIC WORK

During the year this office assisted the municipal architect in laying out plumbing work on plans for schools, police stations, engine houses, and other public buildings and inspected the plumbing work as it went in, reporting the results to the municipal architect. It is believed that this close cooperation with that office resulted in a higher standard of workmanship being carried out.

This office also inspected on account of the sewer division all renewals of connections to relaid public sewers and greatly assisted that branch.

#### PLUMBING BOARD

The plumbing board held 24 meetings and examined 63 plumbers, of whom 15 passed (twice as many as during the previous year) and were granted license, so that at the close of the fiscal year there were 257 registered master plumbers in the District, about 210 of them, being actively engaged in business; there were also 6 registered gas fitters.

#### PUBLIC CONVENIENCE STATIONS

During the last year four convenience stations were opened daily from 6 a. m. to midnight, with two shifts of attendants, each working 9 hours per day. The largest station, that at Seventh and Pennsylvania Avenue accommodated 5,883,360; that at Thirteenth and one-half Street and Pennsylvania Avenue 3,909,564; that at Ninth Street and New York Avenue 4,617,360; and that at Fifteenth Street and Maryland Avenue NE., 2,381,412, making a total patronage of more than sixteen and one-half millions of persons using these stations during the year. The cash receipts from the using of the pay compartments, telephone commissions, public scales, etc., amounted to \$6,690.58, being very close to one-fourth of the cost of operation of these stations.

A. R. McGONEGAL,  
*Inspector of Plumbing.*

The INSPECTOR OF BUILDINGS.

## REPORT OF THE MUNICIPAL ARCHITECT

WASHINGTON, D. C., August 28, 1926.

Sir: I have the honor to submit herewith the following report of the operations of the office of the municipal architect for the fiscal year ended June 30, 1926:

The work in the municipal architect's office consists of the preparation of plans, specifications, and the superintendence of the construction of all buildings erected by the District of Columbia, consisting chiefly of schools, fire-engine houses, police stations, hospitals, and, in addition, the preparation of drawings and estimates for new buildings and repairs to existing buildings for the various municipal institutions, such as the Home for the Aged and Infirm at Blue Plains, the National Training Schools for both boys and girls, and the new District Training School at Laurel, Md. Plans of all buildings are submitted to the Fine Arts Commission for approval before work on contract plans is begun.

The repair shop, which is an adjunct to the municipal architect's office, is charged with the upkeep and repair work required for the various buildings of the school system as well as other municipal institutions.

A separate report on the repair shop is forwarded herewith.

The development of plans and the construction of buildings for the reformatory and workhouse at Lorton, Va., also comes under this office, and the report of the engineer in charge is forwarded herewith.

The following buildings were under construction at the time of the submission of the last annual report and have since been completed:

John F. Cook School, located on P Street, between North Capitol and First Streets NW. The appropriation act of February 28, 1923, authorized the commissioners to enter into contract for the erection of a 16-room building, including combination assembly hall and gymnasium, to replace the John F. Cook School, at a cost of not to exceed \$250,000, and appropriated \$100,000 for the beginning of the erection. By the act of June 7, 1924, an additional amount of \$150,000 was appropriated for completing the erection. Contract was executed January 16, 1925, with Skinker & Garrett for the construction of the building, with combination assembly hall and gymnasium, including plumbing, electrical, heating, and ventilating work, in the sum of \$237,951. The work was completed November 16, 1925, at a total cost of \$238,309. The direct-radiation gravity system of heating was installed in this building. Cubic contents, 728,848 cubic feet. Cost per cubic foot, 32.5 cents.

Engine house No. 29, located at Conduit Road and Reservoir Street NW.: By the act of June 7, 1924, \$56,000 was appropriated for house, site, furniture, and furnishings for an engine company to be located in the vicinity of Conduit Road and Reservoir Street NW., including the cost of necessary instruments for receiving alarms and connecting said house with fire-alarm headquarters. Contract was executed March 24, 1925, with the C. A. Hofferberth Construction Co. for the construction of this building, including plumbing, heating, and electrical work, in the sum of \$49,424. The work was completed October 12, 1925, at a cost of \$49,424.68. The direct-radiation gravity system of heating was installed in this building. Cubic contents, 118,535 cubic feet. Cost per cubic foot, 42 cents.

Truck house No. 13, located at Florida Avenue and Orren Street NE.: By the act of June 7, 1924, \$62,000 was appropriated for house, site, furniture, and furnishings for a truck company to be located in the northeast section of the city, in the vicinity of Twelfth and H Streets NE., including the cost of necessary instruments for receiving alarms and connecting said house with fire-alarms headquarters. Contract was executed May 5, 1925, with Allen H. Rogers for the construction of this building in the sum of \$52,650. The work was completed November 7, 1925, at a total cost of \$52,630. The direct-radiation gravity system of heating was installed. Cubic contents, 161,581 cubic feet. Cost per cubic foot, 32.57 cents.

Armstrong Technical High School, located on P Street, between First and Third Streets NW.: By the act of March 3, 1925, \$50,000 was appropriated for enlarging the heating plant and the completion of the addition to this building. Contract was executed June 16, 1925, with M. B. Casey & Co. for making alterations in the heating and electrical systems of the power plant of this building in the sum of \$29,049. The work was completed October 1, 1925, at a cost of \$29,390.

Tuberculosis hospital—addition to laundry, located on Fourteenth Street, between Shepherd and Upshur Streets NW.: By the act of June 7, 1924, \$7,500 was appropriated for the construction of an additional room for the laundry at the tuberculosis hospital. Contract was executed June 19, 1925, with the C. A. Hofferberth Construction Co. for the construction of this room, in the sum of \$5,569. The work was completed November 14, 1925, at a cost of \$7,497.50. Cubic contents, 15,402 cubic feet. Cost per cubic foot, 48.6 cents.

National Training School for Girls, located at Muirkirk, Md.: By the act of February 28, 1923, the president of the board of trustees of the National Training School for Girls of the District of Columbia was authorized and directed to purchase a tract of land of not more than 160 acres, situated in the District of Columbia or in the State of Maryland or in the State of Virginia, as a site for the use of said school, and the board of trustees were authorized to construct on said tract buildings of sufficient capacity to accommodate not more than 150 persons, the plans and specifications for such buildings to be prepared by the municipal architect of the District of Columbia. The purchase price for said tract of land, the erection of the said buildings, and all expenses incidental thereto were not to exceed the sum of \$62,000, which amount was appropriated for that purpose. By the act of March 4, 1925, \$23,000 was appropriated as an additional amount for the construction of buildings, including necessary waterworks, electrical connections, and sewage disposal. Contract was executed June 1, 1925, with Frank E. Hartman Co. (Inc.) for the construction of a cottage, in the sum of \$42,410. This work was completed December 1, 1925, at a total cost of \$42,856.13. Cubic contents, 102,672 cubic feet. Cost per cubic foot, 41.7 cents.

Metal door and window guards have been provided at a cost of \$1,454. A subsoil drainage system has been installed around the cottage, a sewer system provided, a cypress water tank erected, and the old water-supply system improved and enlarged and made adequate for the present needs, at a cost of \$3,465. Electric lighting and power service have been brought to the site from the lines of the Potomac Electric Power Co., and electric lighting fixtures installed

at a cost of \$392. The new building was painted and decorated on the interior at a cost of \$1,000.

District Training School, located near Laurel, Md.: By the act of June 29, 1922, the commissioners were authorized and directed to use a site for a home and school for feeble-minded persons, said site to be located in the District of Columbia on land owned by the District of Columbia and then allotted to the Home for the Aged and Infirm, and to erect thereon suitable buildings at a total cost not exceeding \$250,000, and for said purpose there was appropriated the sum of \$100,000.

The act of February 28, 1923, repealed the provision in the above-mentioned act that authorized the use of a site for this institution on lands owned by the District, located in the District of Columbia, and authorized and directed the commissioners to acquire a site for the home and school for feeble-minded persons, said site to be located in the District of Columbia or in the State of Maryland or in the State of Virginia, and to erect thereon suitable buildings, at a total cost not exceeding \$300,000, of which not more than \$38,000 should be expended for a site, and reappropriated the sum of \$100,000 contained in the District of Columbia appropriation act for the fiscal year 1923, for use in the erection of such buildings. The site acquired is located near Laurel, Md. By the act of June 7, 1924, \$30,000 was appropriated for continuing construction, and the commissioners were authorized by said act to proceed with such construction by day labor or otherwise, as in their judgment might be most advantageous to the District, and to enter into contracts or otherwise incur obligations on account of such construction not to exceed \$232,000. By the act of March 3, 1925, an additional amount of \$170,000 was appropriated for continuing construction, by day labor or otherwise, as might be considered most advantageous to the District.

A mess hall and dormitory was completed July 8, 1925, at a cost of \$28,034.11. This work was performed by day labor.

On May 5, 1925, the commissioners issued an order directing the municipal architect to proceed with the construction of new buildings by day labor. The structures under contemplation in this order were three typical dormitory buildings, each to accommodate 60 inmates, and to consist of a ground floor and one story, of fire-proof construction, with brick walls and slate roofs. Ground was broken on May 20, 1925. By July 1, 1926, these three buildings were erected and put under roof. It is estimated that all of them will be entirely completed within 60 days from said date. These buildings will cost approximately \$75,000 each, or \$225,000 for the three buildings. Cubic contents, 206,756 cubic feet each. Cost per cubic foot, 36.2 cents.

#### BUILDING CONSTRUCTION STARTED SUBSEQUENT TO JULY 1, 1925

Armstrong Technical High School, located on P Street, between First and Third Street NW.: By the deficiency act of March 4, 1925, \$50,000 was appropriated for connecting the new addition to the old building and for necessary reconstruction of the old building. Contract was executed July 28, 1925, with George E. Wyne for the construction of a connecting corridor, including plumbing, heating, and

electrical work, in the sum of \$34,900. The work was completed November 17, 1925, at a total cost of \$35,174.81. Cubic contents, 61,664 cubic feet. Cost per cubic foot, 57 cents.

Western High School, located at Thirty-fifth and Reservoir Streets NW.: By the deficiency act of March 4, 1925, \$47,500 was appropriated for the necessary remodeling of the old Western High School. Contract was executed June 26, 1925, with Allen H. Rogers for making alterations in said building, including plumbing, electrical, and heating work in the sum of \$44,425.52. The work was completed January 25, 1926, at a cost of \$45,327.58. The vacuum system of heating was installed.

Garage for police station No. 12, located at Rhode Island Avenue and Seventeenth Street NE.: By the act of March 3, 1925, \$8,000 was appropriated for the construction of a garage for No. 12 police precinct station house. Contract was executed November 10, 1925, with Robert R. Cunningham for the construction, in the sum of \$7,791. The work was completed February 15, 1926, at the contract price. The blast system of heating was installed. Cubic contents, 30,960 cubic feet. Cost per cubic foot, 25.1 cents.

Storehouse for the electrical department, District of Columbia, located at corner of Twelfth and D Streets SW.: By the act of March 3, 1917, \$9,000 was appropriated for the erection of a brick or concrete storehouse on land belonging to the District of Columbia, to be used for the storage of material and supplies of the electrical department. Plans were prepared in March, 1918, for the construction of a warehouse at Second and H Streets SE., but on account of the advancing war-time costs of construction it was found that the work could not be done for the amount available. On April 14, 1925, this office was advised by the electrical department that space had been assigned for the location of the building at the southwest corner of Twelfth and D Streets SW., and the electrical department requested the preparation of plans for a warehouse and shop with loading platforms. Contract for the construction of the building was executed November 10, 1925, with Leon A. Houser for the construction of the storehouse, including a plumbing system, in the sum of \$8,895. The work was completed February 10, 1926, at the contract price. Cubic contents, 46,592 cubic feet. Cost per cubic foot, 19.1 cents.

Macfarland Junior High School, located on Iowa Avenue, between Allison and Upshur Street NW.: By the deficiency act of March 4, 1925, \$100,000 was appropriated for the construction of a combined assembly hall and gymnasium for this building. Contract was executed August 18, 1925, with the Schneider-Spliedt Co. for the construction of an auditorium addition, including plumbing, electrical, and heating work, in the sum of \$99,700. The work was completed April 10, 1926, at a cost of \$101,862.40. The vacuum system of heating was installed. Cubic contents, 333,000 cubic feet. Cost per cubic foot, 30 cents.

James F. Oyster School, located at Twenty-ninth and Calvert Streets NW.: By the deficiency act of March 4, 1925, \$175,000 was appropriated for the erection of an eight-room extensible building, including combined gymnasium and assembly hall, on a site on Calvert Street owned by the District. Contract was executed August 18, 1925, with George E. Wyne for the erection of an eight-room ex-

tensible building, with a combination assembly hall and gymnasium, including plumbing, electrical, heating, and ventilating systems, in the sum of \$182,021.15. The work was completed June 18, 1926, at a cost of \$181,836.32. The vapor system of heating was installed. Cubic contents, 470,787 cubic feet. Cost per cubic foot, 38.6 cents.

In the case of the Macfarland Junior High School and the James F. Oyster School, where it appears that the total costs of the projects exceed the amount of the appropriation, attention is called to the fact that these projects were included in a lump-sum appropriation of \$2,631,500, which constituted one fund, so that any money saved from any other project included in that fund could be utilized for making up any deficiency in the appropriation or allotment for other school projects.

Police precinct station No. 13, located on Nicholson Street, between Thirteenth and Fourteenth NW.: By the act of March 3, 1926, \$64,000 was appropriated for the erection of a two-story building, to be known as the thirteenth police precinct station house. Contract was executed December 29, 1925, with Allen H. Rogers for the construction of a station house and garage, including plumbing, electrical, heating, and ventilating systems, in the sum of \$61,013. The work was completed August 14, 1926, at a total cost of \$61,801. The vapor system of heating was installed. Cubic contents, 142,900 cubic feet. Cost per cubic foot, 43 cents.

Francis Junior High School, located on N Street, between Twenty-fourth and Twenty-fifth Streets NW.: By the act of June 7, 1924, \$5,000 was appropriated for the preparation of plans and specifications and the investigation of subsurface conditions of the site for a junior high school near Twenty-fourth and N Streets NW. By the act of March 3, 1925, \$175,000 was appropriated for beginning the construction of the John R. Francis Junior High School, and the commissioners were authorized to enter into contract or contracts for such building at a cost not to exceed \$475,000. By the act of May 10, 1926, an additional sum of \$267,500 was appropriated for the completion of the construction of this building. Contract was executed January 16, 1926, with the Charles H. Tompkins Co. for the construction of said building, including mechanical equipment, in the sum of \$414,240. The contract time will expire January 1, 1927. The vacuum system of heating will be used in this building. Cubic contents, 1,270,824 cubic feet. Cost per cubic foot, 32.6 cents.

Randall Junior High School, located on I Street, between Half and First Streets SW.: By the deficiency act of March 4, 1925, \$225,000 was appropriated for the construction of an eight-room addition to the Cardozo School, including a combination gymnasium and assembly hall for use as the Randall Junior High School. Contract was executed January 29, 1926, with the King Lumber Co., general contractors, Charlottesville, Va., for the construction of this eight-room addition, including combination assembly hall and gymnasium, in the sum of \$192,300. The contract time will expire January 1, 1927. The vacuum system of heating will be used in this building. Cubic contents, 547,956 cubic feet. Cost per cubic foot, 35 cents.

Stuart Junior High School, located between E, F, Fourth, and Fifth Streets NE.: By the act of March 3, 1925, \$475,000 was appropriated for the construction of this building, with a combined assembly hall and gymnasium. Contract was executed March 10,

1926, with Parsons & Hyman for the construction of said building in the sum of \$455,000, and for clearing the site of old buildings, etc., in the sum of \$10,000. The vacuum system of heating will be used in this building. Cubic contents, 1,178,614 cubic feet. Cost per cubic foot, 38.6 cents.

Wing addition to the Macfarland Junior High School, located on Iowa Avenue, between Allison and Upshur Streets, NW.: By the act of March 3, 1925, \$125,000 was appropriated for the construction of a wing addition to this building. Advertisement for bids for the construction was made June 25, 1925, and in response but one bid was received, July 16, 1925, amounting to \$173,237. This bid was in excess of the amount appropriated, and was therefore rejected. By the deficiency act of March 3, 1926, an additional amount of \$55,000 was appropriated for the construction of the wing. Contract was executed April 6, 1926, with the Frank E. Hartman Co. for the construction of the wing addition, including mechanical equipment, in the sum of \$146,575. The vacuum system of heating will be employed in this structure. Cubic contents, 447,104 cubic feet. Cost per cubic foot, 32.8 cents.

Brightwood School, located at Nicholson and Thirteenth Streets NW.: By the deficiency act of March 4, 1925, \$275,000 was appropriated for the erection of a 16-room building, including combination assembly hall and gymnasium, to replace the existing Brightwood School. Contract was executed September 18, 1925, with Parsons & Hyman for the construction of the building with assembly hall and gymnasium, and including plumbing, electrical, heating, and ventilating work, in the sum of \$253,100. The work was completed August 31, 1926, at a total cost of \$254,643. The vacuum system of heating was installed in this building. Cubic contents, 707,958 cubic feet. Cost per cubic foot, 36 cents.

Addition to Bell School, located on Second Street, between Virginia Avenue and D Street SW.: By the deficiency act of March 4, 1925, \$215,000 was appropriated for the construction of an eight-room addition, including a combination gymnasium and assembly hall, the necessary remodeling of the old building, and the purchase of additional land. Contract was executed August 18, 1925, with Skinker & Garrett for the construction of this addition, with combination assembly hall and gymnasium, including heating and ventilating, electrical and plumbing work, and also including the erection of a radial brick chimney 95 feet high, in the sum of \$172,072. The work was completed August 3, 1926, at a total cost of \$172,645.97. The vapor system of heating was installed. Cubic contents, 448,171 cubic feet. Cost per cubic foot, 38.5 cents.

John Greenleaf Whittier School, located at the southeast corner of Sheridan and Fifth Streets NW.: By the act of March 3, 1925, \$140,000 was appropriated for the construction of an eight-room extensible building on the site at Fifth and Sheridan Streets NW. Bids for the construction of this building were received July 13, 1925, the lowest of said bids being in the sum of \$157,400. As this was in excess of the amount appropriated, the bids were rejected. Bids were again received September 15, 1925, the lowest being submitted by Skinker & Garrett in the sum of \$159,000. As this bid also exceeded the amount of the appropriation, it was determined to omit certain portions of the work as shown on the proposal plans

and to enter into contract for the construction of the remainder. Contract was therefore executed October 30, 1925, with Skinker & Garrett for the construction of the building, including mechanical equipment, with the exception of the portions of the work marked "Omitted" on the original drawings, namely, rooms for the library, the principal and teachers, the janitor, medical and dental clinics, the stairway and appurtenances thereto, and the entrance to proposed auditorium, in the sum of \$114,827.

It was provided in said contract that in the event Congress should appropriate sufficient funds for and authorize the completion under this contract of the work marked "Omitted" on the drawings the Commissioners of the District of Columbia would have the right, prior to March 1, 1926, to direct the contractor to perform said work for the sum of \$44,173, or at the actual cost of labor and material plus 15 per cent thereof. By the deficiency act of March 3, 1926, an additional amount of \$27,500 was appropriated for the construction of this building. A supplementary agreement was executed March 24, 1926, with Skinker & Garrett for the performance of the work marked "Omitted" on the original drawings in the sum of \$44,173, making the total amount of the contract price for the entire work \$159,000. The contract time will expire October 1, 1926. The work to date has cost \$160,316.58. The vacuum system of heating will be used in this building. Cubic contents, 382,860 cubic feet. Cost per cubic foot, 40.7 cents.

Job Barnard School, located at the southeast corner of Decatur and Fifth Streets NW.: By the act of March 3, 1925, \$140,000 was appropriated for the construction of an eight-room building on the site near Fifth and Buchanan Streets NW. Bids for the construction of this building were received September 15, 1925, the lowest bid being submitted by Skinker & Garrett in amount \$156,000. As this bid exceeded the amount of the appropriation, it was determined to omit certain portions of the work as shown on the proposal plans and to enter into contract for the construction of the remainder. Contract was therefore executed October 30, 1925, with Skinker & Garrett for the construction of the building, including mechanical equipment, with the exception of the portions of the work marked "Omitted" on the original drawings, namely, rooms for the library, the principal and teachers, the janitor, medical and dental clinics, the stairway and appurtenances thereto, and the entrance to proposed auditorium in the sum of \$114,000. It was provided in said contract that in the event Congress should appropriate sufficient funds for and authorize the completion, under this contract, of the work marked "Omitted" on the drawings the Commissioners of the District of Columbia would have the right prior to March 1, 1926, to direct the contractor to perform said work for the sum of \$42,000, or at the actual cost of labor and material plus 15 per cent thereof. By the deficiency act of March 3, 1926, an additional amount of \$25,500 was appropriated for the construction of this building. A supplementary agreement was executed March 24, 1926, with Skinker & Garrett for the performance of the work marked "Omitted" on the original drawings in the sum of \$42,000, making the total contract price for the entire work \$156,000. The contract time will expire October 1, 1926. The work to date has cost \$159,158.15. The

vacuum system of heating will be installed. Cubic contents, 382,860 cubic feet. Cost per cubic foot, 40.7 cents.

George Truesdell School (formerly Brightwood Park School), located at the southeast corner of Ingraham and Ninth Streets NW.: By the act of March 3, 1925, \$140,000 was appropriated for the construction of an eight-room addition to the Brightwood Park School. Bids for the construction of this addition were received September 15, 1925. The lowest bid exceeded the amount of the appropriation, which was in amount \$155,000, submitted by Skinker & Garrett. It was, therefore, determined to omit certain portions of the building work as shown on the proposal plans, and to enter into contract for the construction of the remainder. Contract was therefore executed October 30, 1925, with Skinker & Garrett for the construction of the addition, including mechanical equipment, with the exception of the portion of the work marked "Omitted" on the original drawings, namely, rooms for the library, the principal and teachers, the janitor, medical and dental clinics, the stairway and appurtenances thereto, and the entrance to proposed auditorium, in the sum of \$110,000. It was provided in said contract that in the event Congress should appropriate sufficient funds for and authorize the completion, under this contract, of the work marked "Omitted" on the drawings, the Commissioners of the District of Columbia would have the right, prior to March 1, 1926, to direct the contractor to perform said work for the sum of \$44,000 or at the actual cost of labor and materials for said work plus 15 per cent thereof. By the deficiency act of March 3, 1926, an additional amount of \$30,000 was appropriated for the construction of this building. A supplementary agreement was executed March 24, 1926, with Skinker & Garrett, for the construction of the portions of the work marked "Omitted" on the original drawings, in the sum of \$44,000, making the total contract price for the entire work \$155,000. The contract time will expire October 1, 1926. The work to date has cost \$162,080.85. The vacuum system of heating will be used in this building. Cubic contents, 382,860 cubic feet. Cost per cubic foot, 42 cents.

Cottage for boys, Industrial Home School for Colored Children: By the act of March 3, 1917, \$15,000 was appropriated for the construction of a building adequate for the purposes intended. By the act of June 29, 1922, an additional amount of \$5,000 was appropriated, and by the act of February 28, 1923, a further appropriation of \$5,000 was made. Plans were prepared and advertisement for bids was made June 1, 1923. But one bid was received in response to the advertisement, in amount \$40,827. Being in excess of the amounts appropriated, the bid was rejected. The plans were revised, bids were received February 17, 1926, and contract was executed April 6, 1926, with Allen H. Rogers for the construction of a brick cottage, including plumbing, heating, and electrical work, in the sum of \$23,894. The contract time expired August 3, 1926. The work was completed August 25, 1926, at a cost of \$25,000. Cubic contents, 63,506 cubic feet. Cost per cubic foot, 36 cents.

Besides the preparation of plans and specifications for the above-mentioned buildings, plans and specifications for 50 other pieces of work, such as heating systems for engine houses, police stations, and school buildings, and equipment for various buildings in the

office of the municipal architect, the contract prices therefor amounting to \$176,208.

The contracts entered into by this office during the fiscal year beginning July 1, 1925, and ending June 30, 1926, amounted to a total of \$4,737,876.37.

The plans of all buildings for which appropriations were granted in the 1926-27 bill have been completed with the exception of the Bruce School. Owing to the fact that it was necessary to condemn property facing Sherman Avenue, it was impossible to proceed with the letting of the contract for this school. The property has now been secured and bids will be solicited immediately. Otherwise all buildings of the fiscal year 1926-27 has been put under contract and has been either completed or in the process of construction.

I wish to renew my recommendation of previous years that some definite policy be adopted for the proper treatment of the grounds around school buildings. Estimates for buildings are based on the actual cost of the building itself and does not carry an item for the treatment of grounds. This has been made necessary to conserve the maximum amount of money for buildings. Many of the school sites have been left in an unfinished condition. I have asked the board of education to give serious thought to this problem and adopt some general policy with reference to its solution.

The attention of the commissioners is called to the lack of library facilities in the office of the municipal architect. An office doing the volume of work such as this should have a reference library of standard architectural books to facilitate the designing of the various structures erected. There is at the present time a small number of books but not sufficient to be of any substantial value as a working library. I wish to recommend that the commissioners include in the estimates for the next fiscal year an appropriation of \$2,000 to start a proper library of architectural books.

ALBERT L. HARRIS,  
*Municipal Architect.*

To the ASSISTANT ENGINEER COMMISSIONER.

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#### REPORT OF THE SUPERINTENDENT OF REPAIRS

WASHINGTON, D. C., August 28, 1926.

SIR: I have the honor to forward herewith my annual report showing the operations of this shop during the fiscal year ended June 30, 1926.

There was appropriated by Congress:

For public schools, District of Columbia, 1925-26, repairs to buildings and grounds, \$450,000 available. We expended during the year \$450,000, and in order to do some emergency repair work which it was absolutely necessary to have done we were compelled to deplete our stock by \$26,688.08 and to use \$159.93 worth of deposits made by the parent-teachers associations for this class of work. We reserved a balance in the appropriation of \$585.95 to pay any outstanding bills which may come in on account of excess delivery of materials. While this balance is a trifle over last year's, it is to be remembered that the annual furnace casting replacement order, amounting to

something like \$16,000, is included in this year, and this order calls for 130,087 pounds of castings, more or less, and it is usually more than the estimated number of pounds, due to the fact that when the furnaces are torn down more repair is necessary than could be seen when the furnaces are assembled.

For fire department, District of Columbia, 1926, repairs to engine houses, \$25,000, all of which was expended except \$13.25.

For Metropolitan police, District of Columbia, 1926, repairs to stations, \$7,000, all of which was expended.

For repairs to police court, District of Columbia, 1925-26, \$3,000, all of which was expended; police court, District of Columbia, 1926, \$8,000, all of which was expended except \$66.25.

The foregoing amounts represent the actual cost of 5,192 separate jobs.

In addition to the work covered by the above appropriations, which are under the supervision of the superintendent of repairs, this shop did \$67,857.13 worth of work from various appropriations controlled by other departments.

We inspected and repaired steam boilers in over 100 buildings owned by the District.

The installation of modern lighting systems was continued extensively during this year and so much was accomplished that we hope by June 30, 1927, that every school building in the city of Washington will be completely electrified.

Our entire inspection staff is now equipped with motor transportation. However, it is still necessary for us to use horse-drawn vehicles. We estimate our needs to be about six 1-ton or 1½-ton motor trucks to replace horses in service, and we feel this will reduce our upkeep and help us to render more efficient service.

For several years we have been inviting attention to our urgent need of additional storage space at this shop for both materials and automobiles. We wish to report additional space for automobiles has been provided and we are relieved to some extent. However, storage space is still badly needed.

The organization of the shop is the same as it was last year. The shop is composed of five annual employees—the superintendent, assistant superintendent, and three clerks—and from 115 to 240 per diem employees of the various trades. This number increases and decreases according to the seasons of the year and the amount of work in hand.

The following comprise several extraordinary items paid for out of the school appropriation which were done by contract: Heating plants in nine schools—Tyler, Banneker, Corcoran, Briggs, Carbery, Madison, Jackson, Ambush, and Dennison, \$53,262.72; and electrifying old and new Armstrong, \$6,184.19.

We have followed the practice of the last few years in compiling this report. Should more detailed information be desired we can furnish a detailed statement of the cost of every job or we can furnish the expenditures under each class of work on each and every building.

Respectfully submitted.

To the MUNICIPAL ARCHITECT.

HENRY STOREY,  
*Superintendent of Repairs.*

**REPORT OF CONSTRUCTING ENGINEER, DISTRICT OF COLUMBIA,  
WORKHOUSE AND REFORMATORY***LORTON, VA., August 28, 1926.*

SIR: I have the honor to submit report of the operations of the construction division of the workhouse and reformatory for fiscal year ended June 30, 1926. Only a brief account of the work done is described here; more detailed information may be furnished on request.

The principal work done at the workhouse during this year consisted of work on three dormitories, one of which was completed and occupied, the construction of two brick cottages, and the starting of the new brick plant.

At the reformatory six dormitories and the mess hall are nearing completion and about 80 per cent of the grading is complete for the last section of the industrial railroad. Arrangements were made late in November for securing sufficient steel rails, switches, etc., for completing the railroad.

**REFORMATORY BUILDING**

At the reformatory main group 18 buildings are complete or under construction as follows: Four shop buildings complete and occupied; one shop building complete, except floor, etc.; one boiler house complete; one cell house complete and ready for occupancy; one disciplinary dormitory complete and occupied; one dormitory complete; three dormitories complete, except for interior finishing; two dormitories, brickwork average 90 per cent complete; two dormitories, foundations in place; one wash house complete, except interior work; one mess hall, brickwork practically complete, main roof complete, except slating; one guard's cottage, average 90 per cent complete (not included in group).

**WORKHOUSE BUILDINGS, ETC.**

At the workhouse buildings are complete or under construction as follows: One dormitory complete, occupied January 28; 1 dormitory, brickwork practically complete, roof half complete; 1 dormitory, foundation in place; clay-storage shed at brickyard enlarged, increasing the storage capacity for shale and clay by 50 per cent; new shingle roof of home-cut shingles placed on dairy barn; 2 heating boilers, transferred from Fort Humphreys, were installed and put in service November 1, 1925, for heating workhouse buildings.

**BRICKYARD**

A successful test was made of the new brick machine after a delay in replacing a defective controller for one of the motors. This machine produces slightly more than 7,000 bricks per hour, being 1,000 more per hour than required by the specifications.

It was found that it required only about 1 ton of coal per day in addition to the normal coal consumption at the power plant to furnish the necessary electric power for running this plant. The old

steam plant required about 4 tons of coal per day for generating steam, thus saving about 4 tons of coal per day of operation.

A steam shovel has been operating more than six months removing the strata of gravel from the shale, greatly facilitating the removal and handling of the shale. Approximately 5,305 cubic yards of gravel and other material not suitable for the making of brick have been removed in this way.

During the year 4,404,760 bricks were made, being considerably more than manufactured last year. Assuming the cost of brick at \$16 per thousand, the output value of the machine is approximately \$112 per hour, but the kiln capacity will permit only about 60 hours' operation per month. More kilns are badly needed if the production is to be increased.

#### POWER PLANT

The electric motors at the new brick plant tax the generator at the central power plant nearly to its maximum capacity when the other large motors at the institution are in operation. In order to remedy this condition the power required for pumping water and making ice should be drawn largely at night when the load on the generator is very light. Ample capacity for storing water and ice should be provided that this may be accomplished.

If this practice is put in effect only one boiler at the central power plant need be used at a time and the purchase of a larger electric generator may be put off until further growth of the institution demands.

#### WATER SYSTEM

Improvements to the water system including an additional pumping unit, settling basins, and another storage tank are urgently needed. The damage to plumbing fixtures, clogging of small pipes, especially in the new permanent buildings, should be avoided.

#### INDUSTRIAL RAILROAD

Grading was started in August, 1925, on the last section of the industrial railroad between the reformatory and a point near Pohick Station where this railroad will connect with the R. F. & P. R. R. Approximately 80 per cent of this grading is now complete, the rails and switches have been obtained, and it should be possible within the next six months to have this section completed.

With this last section complete it will be possible to bring in coal and supplies by rail.

Respectfully submitted.

HERBERT R. HAAR,

*Constructing Engineer.*

To the MUNICIPAL ARCHITECT.

#### REPORT OF THE ELECTRICAL ENGINEER

WASHINGTON, D. C., September 1, 1926.

SIR: The annual report of the operations of the electrical department for the fiscal year ended June 30, 1926, is respectfully submitted herewith.

## FUNCTIONS

The work of the electrical department includes (*a*) the street lighting, electric and gas, designation lights and signs indicating location of fire alarm boxes, etc., and street designation signs; (*b*) the municipal signals and communication systems; (*c*) the regulation of production (except by public utility companies), use and control of electricity for light, heat, and power purposes, the regulation of poles and overhead wires in public space, and (jointly with other divisions concerned) regulation of underground electrical constructions in public space; (*d*) consultation and advisory service to other departments and divisions of the District government.

## STREET LIGHTING

The street-lighting system at the beginning of the fiscal year consisted of 22,567 lamps—11,861 gas and 10,706 electric (822 arc, 9,884 incandescent); on June 30, 1926, there were in service 23,387 lamps—12,065 gas and 11,322 electric (892 arc, 10,430 incandescent), a total net increase of 820 lamps, compared with 744 in 1925. Of the 2,240 lamps newly connected (gross), 785, about 35 per cent, were either designation lamps or of the next lowest powered gas or electric. This percentage compares with 47 for 1925 and 58 for 1924, reflecting the trend toward larger units, as was and is needed. The increase in aggregate candlepower of the street lighting system is from approximately, 2,183,400 to, approximately, 2,844,600, about 30 per cent.

The outstanding feature of the year was the continuing, from small beginning of last year, of the approved project of improved lighting on Sixteenth Street NW., on Massachusetts Avenue NW., and at Scott, Thomas, and Dupont Circles. The installation of lamps of 600 candlepower and of 1,000 candlepower at mounting heights of from 15 to 20 feet, replacing 60 candlepower gas and 100 candlepower electric lamps at 10 to 12 feet mounting height; also the installation on H Street, from Third Street NW. to Fifteenth Street NE., of 6.6 arc lamps on District-owned ornamental posts, replacing 4-ampere arc lamps on company-owned nonornamental poles. On portions of Sixteenth Street and Massachusetts Avenue the posts serve the dual purpose of bearing a street lamp and a traffic-signal fixture. It was proven by experimentation that sightliness would be far better served in that way than by having additional posts or posts of diverse character. Some modification in plan of location of posts was made to cooperate with the director of traffic. The improved lighting provides much greater comfort in travel to both motorist and pedestrian and it is believed that it will prove an important factor in safety as well as convenience.

## ARC LIGHTING

There has been an increase of 147 in the number of 6.6-ampere magnetite arc lamps to 431 and a decrease of 77 in the number of 4-ampere magnetite arc lamps to 461, a net increase of 70 in the total number of arc lamps to an aggregate of 892. The new style

glass inclosure, improved in form, in material, and in surface treatment, has proven of greater effectiveness than the older style.

#### INCANDESCENT ELECTRIC LIGHTING

The number of incandescent lamps added (other than designation lamps) is 1,389 (231 of 1,000, 438 of 600, 269 of 250, 47 of 100, and 404 of 60 candlepower); discontinued, 868 (96 of 250, 596 of 100, and 176 of 60 candlepower), a net increase of 521 lamps. The total number of incandescents (other than designation lamps) connected June 30, 1926, was 10,154, compared with 9,633 at the close of the preceding year. The new installation of 404 lamps of 60 candlepower is indicative of the continued development of the suburban area, imposing necessity of providing lighting in newly developed streets and extensions considerably in advance of the practicability of applying the new project, in which such small lamps have little part.

#### MANTLE GAS LIGHTING

The number of mantle gas lamps added was 673, discontinued 431, a net increase of 242. The total gas lamps connected June 30, 1926, was 11,720 (10,811 60-candlepower, 909 120-candlepower), compared with 11,478 (10,892 60-candlepower, 586 120-candlepower) at the close of the preceding year. The 60-candlepower are single burner and the 120-candlepower double burner. In total mantles there were 12,629 connected June 30, 1926, compared with 12,064 at the close of the preceding fiscal year; an increase of 565 mantles compared with an increase of 624 mantles in the preceding fiscal year, indicating that, while as in the case of the small-power electric lamps, there is increment in gas lighting, mostly in suburban territory, a turning point in rate of increase has been reached. Much of the gas lighting is a relic of the days before electric street lighting. Other, outside the old fire limits, was instituted in localities where overhead electric construction was not available, either because nonexistent or because in the alleys and duplication not desirable. On the basis of low-powered units and the degree of illumination requisite in the horse and buggy days, the gas lighting was of lower cost than a comparable underground electric installation and was generally preferred to the bare lamp and overhead wire construction of comparable cost.

#### DESIGNATION LAMPS

The number of designation lamps added was 31 (3 gas, 28 electric), and the number discontinued was 44 (41 gas, 3 electric), a net decrease of 13, compared with a net increase of 13 in the preceding year. The number of designation lamps connected June 30, 1926, was 621 (345 gas, 276 electric), compared with 634 (383 gas, 251 electric) at the close of the preceding year. Thirty-eight posts bearing street designation signs and designation lamps were removed from the streets and street designation signs placed to be incidentally illuminated by the street lamps.

## LIGHTING ALONG STEAM RAILROADS

The situation with respect to the several suits at law brought by the District of Columbia against certain railroad companies for payment of sums expended for the lighting of streets, avenues, etc., adjacent to their several rights of way remains essentially as reported for the past six years. The sum to be added in claim for the fiscal year is \$9,950.54.

## SIGNALS SYSTEM

The fire-alarm telegraph, police-patrol signal, and telephone systems have been operated and maintained, and each has expanded slightly to meet, in part at least, the growing requirements.

Fire alarm boxes added to the system number 34 (33 public, 1 private), and 1 private box was discontinued, a net increase of 33, to a total in service June 30, 1926, of 877 (692 public, 185 private). Five existing boxes were changed from overhead to underground connection. Boxes connected underground were increased by 30, to a total of 748, and boxes connected by overhead wires were increased by 3, to a total of 129. A "private" box is one so located as to especially serve some special interest, not freely accessible to the public in general, and for which the cost of the immediate installation and of connection to nearest available circuit is borne by the specially interested party.

Although there is the gratifying increase in number of public boxes connected to the system of 33, compared with 29 and 15 in the two preceding years, reference is invited to previous annual reports on serious need of more rapid extension of fire-alarm system as boxes in the suburbs, and the recommendations therein repeated. A recent report of National Fire Prevention Association on survey of the city of Washington repeats the expressions in earlier report of some years previous, commendatory as to the down-town section but severely critical as to the residential suburban area. Our experience, and that of other cities, is that the fancied security of reliance on the telephone when in need of assistance in case of fire is in general, delusive. Notwithstanding all possible precautions and efforts on the part of expert fire-alarm operators, the excited condition of the person calling frequently results in failure to make a competent call.

Careful inspection, maintenance, and repair service on the apparatus and connecting wire system has been maintained.

The number of fire alarms of all kinds received and transmitted through fire-alarm headquarters was 3,983, compared with 2,908, 2,711, 2,826, 2,033 and 1,795 in the next five preceding years; this includes 39 "additional" alarms (19 second, 11 third, 4 fourth, and 5 fifth) compared with 30 (15 second, 8 third, 3 fourth, 2 fifth, and 2 special) in the next preceding year. False alarms numbered 297, compared with 227, 278, 210, and 181 in the next four preceding years, the false box alarms (215) being above 13 per cent of the total regular box alarms, compared with above 13, under 16 and under 13 in the next three preceding years. The number of regular

box alarms was 44 per cent of the total of box and local (exclusive of additional) alarms, compared with 46, 47, and 44 per cent in the next three preceding years. While the numerical increase, 1,075 alarms, is the greatest in our history, the percentage increase is less than that of three years previous. It is notable that the increase has been 122 per cent in five years and the need of increased personnel is pressing, that there may be two fire-alarm operators, instead of one, on duty at all times. The National Fire Prevention Association's survey report above referred to cites that fact. The continual alertness and care to be free from error and the occasional strenuousness required of these operators is little appreciated. The sending through to fire stations of box alarms is but a small part of their duties.

The number of police-patrol boxes added was 8, a net increase, compared with net increases of 12, minus 1, 3, and 12 in the next four preceding years, making the total connected June 30, 1926, 509; of these, 411 are connected on underground and 98 on overhead wires; 7 boxes were newly connected on underground wires and 1 on overhead wires, and 3 boxes were changed from overhead to underground connection.

The needs of the police-patrol system as to extension are fairly well met annually, but reference is invited to previous reports on need of completing the modernization of the system inaugurated in 1910, to replace equipment and circuit arrangements then obsolete, and the recommendation therein repeated.

The number of telephones added, connected to the two private branch exchange switchboards under the jurisdiction of this department (the main District of Columbia P. B. X., "Main 6000," and the fire-alarm headquarters P. B. X., "Main 20"), was 27, and 8 were discontinued, a net increase of 19, compared with 11 and 15 in next two preceding years. Connected to other District P. B. X. switchboards, nearly all of which are tie-line connected to "Main 6000" switchboard, 58 were added and 2 discontinued, and in the police-patrol service 8 were added.

The number of telephones of the entire District of Columbia system was increased by 64 (compared with 39, 75, 97, and 26 in the next four preceding years), to a total connected June 30, 1926, of 1,728, exclusive of 29 portable sets in service, the property of the District of Columbia, used by the fire department and the electrical department.

The number of cells of storage battery in service on fire-alarm, police-patrol and local circuits remains at 2,692, as last previously reported.

The distribution equipment for the composite signals system (fire-alarm, police-patrol, and telephone) has been affected by the installation of approximately 9.18 miles of underground cables, containing 275 miles of conductor, and of 1.66 miles of aerial cable, containing 39 miles of conductor, and the withdrawal of 2.23 miles of aerial cable containing 44 miles of conductor, a net increase of approximately 8.61 miles of cable, 270.87 miles of conductor. Grand total of composite distribution in service June 30, 1926, 201.46 miles cable, 7,944.64 miles conductor; (7,797.67 miles underground, and 146.97 miles overhead).

This distribution system is inadequate to meet the demands of growth of the system and to provide reasonably safe reserve capacity for emergency.

The utilization of radio communication in certain municipal functions is being further considered.

#### POLES AND OVERHEAD WIRES

The regulation of the erection of poles, the stringing of overhead wires, and the maintenance of same in safe condition in the streets and other public spaces has been carried on. The operations of the wire-using parties have resulted in an aggregate net increase during the year of 1,724 poles (1,634 line and 90 guy), bringing the record total of electric poles on June 30, 1926, to 25,574 (23,968 line, and 1,606 guy). The list of pole owners comprises the United States, the District of Columbia, and 15 companies (the steam railroads being lumped as one); nearly 82 per cent of the poles are owned by, and practically all the year's increase is by, two of the companies; the activities in increase, decrease, moving, replacing, etc., are confined to the District of Columbia and 8 of the companies; the District of Columbia and 2 of the companies effected net decrease; the United States owns 298 and the District of Columbia 469, a combined Government ownership of 3 per cent of the total. The increase of total, 1,724, compares with 794, 1,097, and 1,045 of the next three preceding years, the exceptional activity being of the Potomac Electric Power Co.; the number of telephone poles in streets and avenues within "the prescribed area" of act of Congress approved June 30, 1902, has been increased by 1, as in the preceding year.

#### ELECTRIC INSPECTION—WIRES AND APPARATUS

In the operations under the act of Congress to regulate electrical wiring in the District of Columbia, approved April 26, 1904, and the regulations thereunder:

The total number of permits issued in connection with the installation of wires and apparatus on private property was 15,267, compared with 13,109, 9,495, 9,791, 8,029, and 6,217 in the next five preceding years, an increase of 146 per cent in five years.

Fees paid to the collector of taxes, \$23,912, compared with \$21,290, \$16,264, \$16,164, \$13,861, and \$11,626.

Number of inspections recorded, 28,212, compared with 25,418, 21,827, 22,817, 17,284, and 16,170.

Though somewhat increased, the personnel on this service is still inadequate to properly cover the new work represented by permits issued; in addition there is much evidence of need of reinspection of old work which can not be undertaken.

#### MISCELLANEOUS

This department prepared specifications for electric wiring in the following District buildings:

Anacostia pumping station.  
Reno pumping station.

Tuberculosis hospital.

Public convenience station No. 1.

Public convenience station No. 2.

This department also cooperated with the director of traffic as to details of signal equipment, and with various heads of departments and offices, determining the most advantageous schedule of service rate on new electric installations, canvassing for advantageous changes of schedule with changes of use conditions in old installations, reading of meters, partial audit of vouchers, inspecting, testing, advice on purchases, etc.

WARREN B. HADLEY,

*Electrical Engineer, District of Columbia.*

To the ASSISTANT ENGINEER COMMISSIONER.

